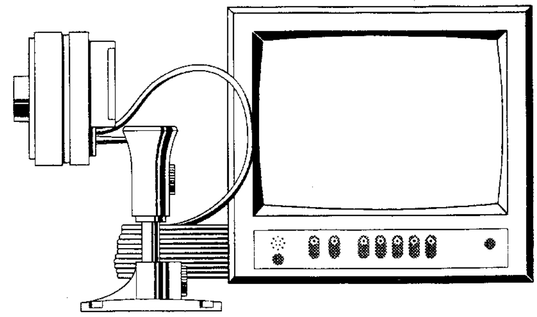
Observation System

VSS2240/00T/01T
VS22415R

Service
Service
Service



Service Manual

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

GB

This Observation systems consists of:

System:	**VSS2240/..**	**VS22415R**
Observation monitor	VSS2440/..	VS24415R
Video Camera	VCM8120/..	VC81205R
Accessoiries are:		
Extra camera	VCM8120/..	VC81205R
Slave monitor	VSS4440/..	VS44405R
Protective camera housing	VCM1151	VCM1151
Cable extension kit	VSS2900	VS29005T

Survey of Service Manuals:

VSS2440/.., VS24415R	4822 727 19097
VSS4440/.., VS44405R	4822 727 19099
VCM8120/..	4822 727 18814

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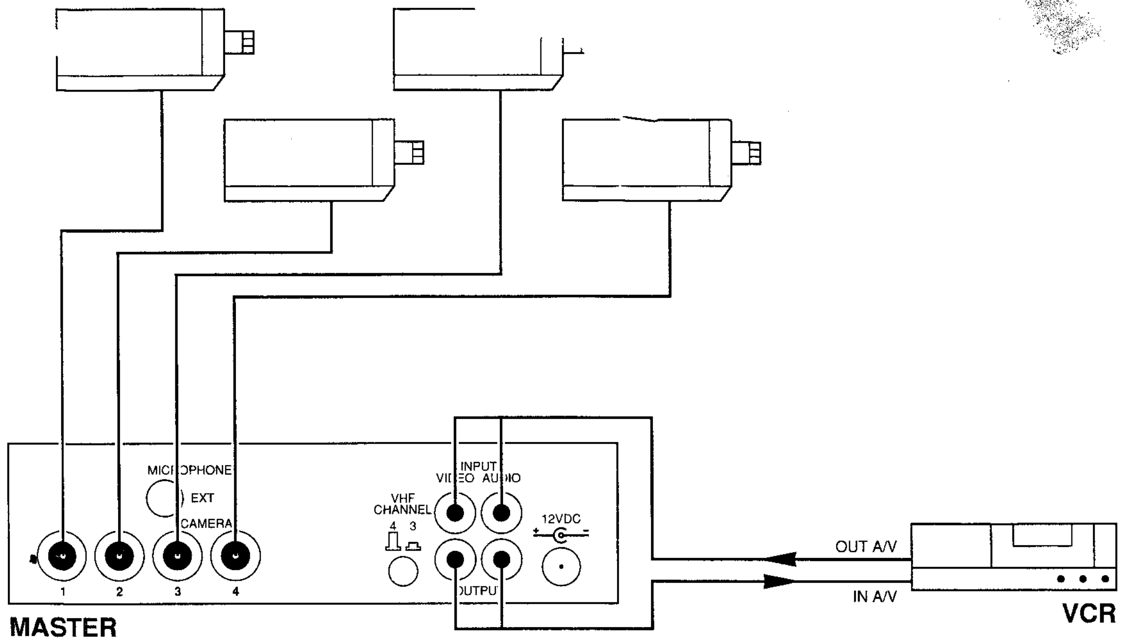
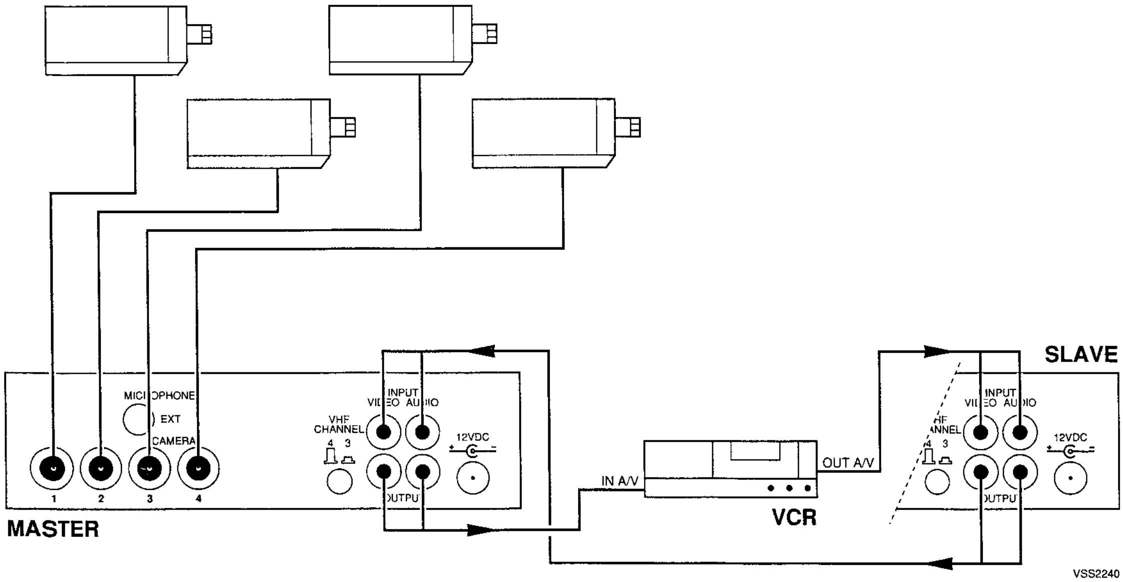
PHILIPS

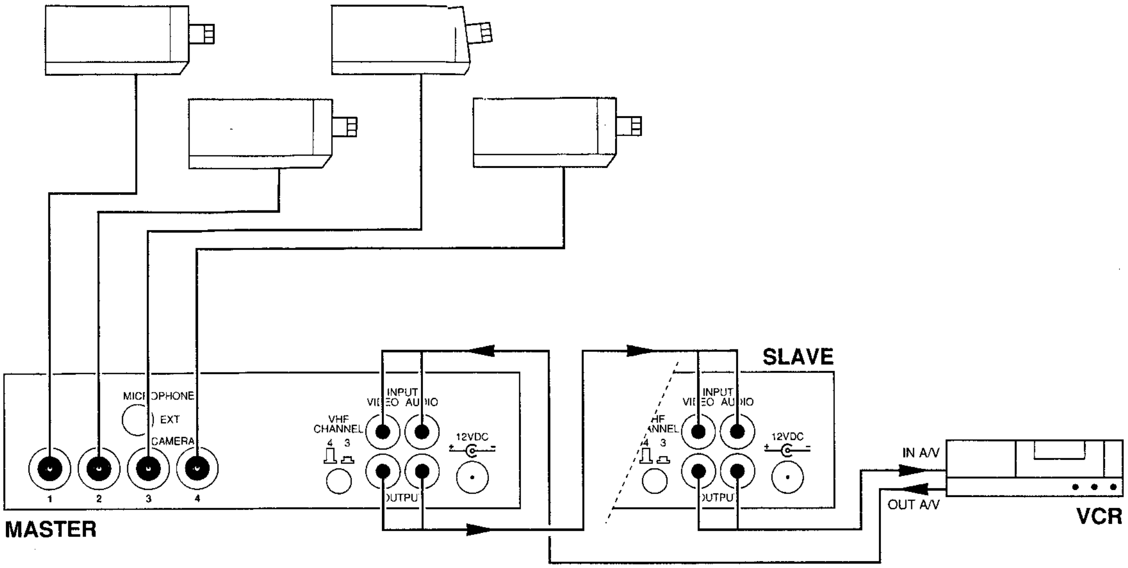
Connection possibilities


MICROPHONE
EXT
CAMERA
1
2
3
4
VHF CHANNEL
4 3
INPUT
VIDEO AUDIO
OUTPUT
12VDC
OUT A/V
IN A/V
MASTER
VCR

VSS2240
CL 26532041/013
310392


MICROPHONE
EXT
CAMERA
1
2
3
4
VHF CHANNEL
4 3
INPUT
VIDEO AUDIO
OUTPUT
12VDC
MASTER
IN A/V
OUT A/V
VCR
SLAVE

VSS2240
CL 26532041/015
310392


SLAVE
MICROPHONE
EXT
CAMERA
1
2
3
4
INPUT
VIDEO AUDIO
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CHANNEL
4 3
OUTPUT
12VDC
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IN A/V
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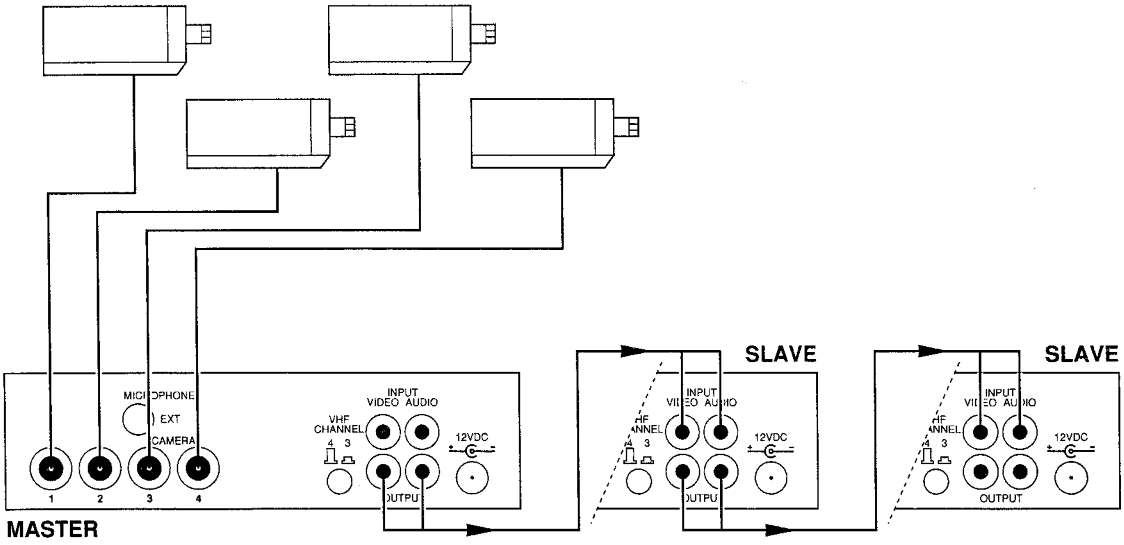
VCR

VSS2240
CL 26532041/014
310392


SLAVE
SLAVE
MICROPHONE
EXT
CAMERA
1
2
3
4
INPUT
VIDEO AUDIO
VHF
CHANNEL
4 3
OUTPUT
12VDC
MASTER

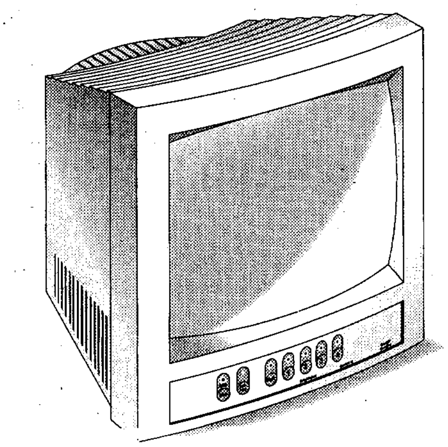
VSS2240
CL 26532041/016
310392

12" Monochrome observation monitor

VSS2440/00T/01T
VS24415R
42MS405T

Service
Service
Service

V17779



Service Manual

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PCS 42 365

1.2 VSS2440 Technical data

General	**-/00T**	**-/01T**	**-VS24415R and 42MS405T**
Mains voltage	220V ± 10%	240V ± 10%	110V ± 10%
Mains frequency	50Hz	50Hz	60Hz
External DC input	11,8V - 16V (Ø 6.5mm)		
Power consumption	31W (AC), camera inclusive 19W (DC), camera inclusive		
Weight	6,5kg		
Dimensions (WxHxD)	345x302x300mm		
High voltage (zero beam)	10,8KV		
Ambient temperature	+5 - +45 °C		

TV system			
Scanning system	CCIR-B (VHF)	CCIR-I	EIA
Number of lines	625	625	525
Field frequency	50Hz	50Hz	60Hz
Channel bandwidth	7MHz	8MHz	6MHz
Video bandwidth	5MHz	5,5MHz	4,2MHz
Difference sound/ video carrier	+5,5MHz	+6MHz	+4,5MHz

Camera inputs	
Impedence	75Ω
Sensitivity	< 300µV

Channels			
CH3			
-video carrier	55,25MHz	55,25MHz	61,25MHZ
-sound carrier	60,75MHz	61,25MHz	65,75MHz
CH4			
-video carrier	62,25MHz	62,25MHz	67,25MHz
-sound carrier	67,75MHz	68,25MHz	71,25MHZ
Horizontal pull-in range	± 4%		
Vertical pull-in range	± 5%		

Audio	
Power output	0,7W
Frequency response	120Hz-3KHz (-3dB)
*Microphone input imped.	600Ω (The external microphone must be a type with integrated push-to-talk switch.)

VCR signals	
video input (CVBS)	1Vpp on 75Ω (0,5 - 1Vpp)
audio input	1Vrms on 600Ω (100mV - 2Vrms on 10KΩ)
video output (CVBS)	1Vpp on 75Ω (with camera signal from 2 to 10mV)
audio output	1Vrms on 600Ω

* For VS24415R only.

TYPENUMBERS:

ERRATA SHEET

VSS2440/00T/01T
VS24415R
42MS405T

Modifications during production:

- * Introduction of short-circuit panel 4822 212 30408 with OP10, see Service Information 4822 727 19858

- * Introduction on PWB breakage preventive kit 4822 600 70709 with OP11; New EEPROM 4822 209 52385 for the VCR date & time setting with OP12; New print material and adaptation of the contrast setting with OP15, see Service Information 4822 727 19916.

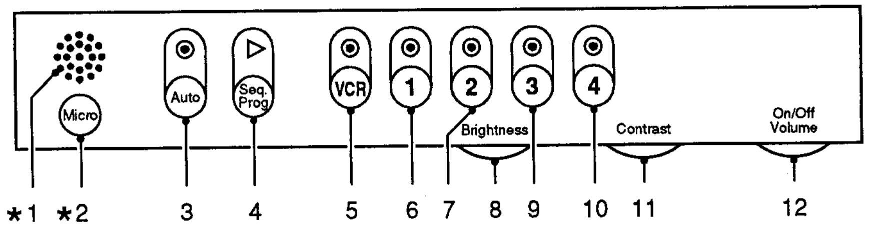
- * Modified LOT (4822 140 10457) & re-layout of the P.W. board introduced with OP20, see Service Information 4822 727 19972

- * Modified EEPROM 4822 209 32972 introduced with OP21; Modified short-circuit panel 4822 212 31268 introduced with OP29; Short-circuit protection integrated in the P.W. board with OP30; New CRT A31-322W - 4822 150 10172 introduced with OP34 & OP35, see Service Information 4822 727 20676.

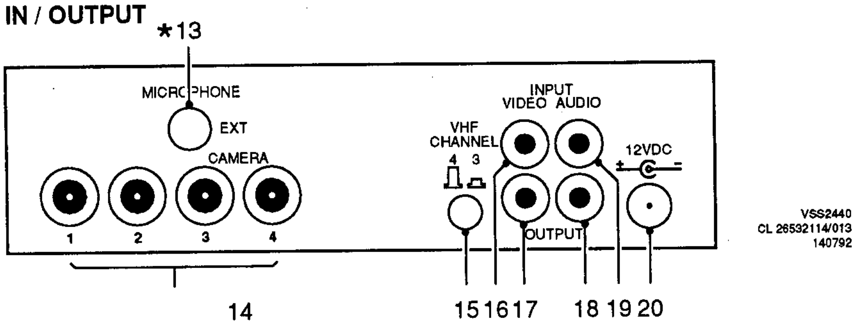
In this Service Information all the circuit diagrams & the spare parts lists are updated.

Controls and In/Outputs

FRONT VIEW
OPERATING AND CONTROL PANEL


Micro
Auto
Seq. Prog
VCR
1
2
3
4
Brightness
Contrast
On/Off Volume
*1
*2
3
4
5
6
7
8
9
10
11
12

REAR VIEW
IN / OUTPUT


*13
MICROPHONE
EXT
CAMERA
1
2
3
4
INPUT
VIDEO AUDIO
VHF CHANNEL
4 3
12VDC
OUTPUT
VSS2440
CL 26532114/013
140792
14
15
16
17
18
19
20

Operating functions

1* Internal microphone
2* Internal microphone activating push button
3 Push button for automatic scanning of connected camera's
4 Push button for adjusting scanning time of connected camera's
5 Push button for receiving signals via video and audio input (VCR signals)
6 Push button for selecting camera 1
7 Push button for selecting camera 2
8 Brightness control
9 Push button for selecting camera 3
10 Push button for selecting camera 4
11 Contrast control
12 ON/OFF swith + Volume control

In/Outputs

13* External Microphone/switch connection (3,5mm)
Remark: External microphone overrides internal microphone
14 Camera input sockets
15 Channel selector switch (CH3 or CH4)
16 Video input socket
17 Video output socket
18 Audio output socket
19 Audio input socket
20 External supply input socket (Ø 6,5mm)

* For version VS24415R only.

Warnings and Notes

Warnings

1. Safety regulations require that the unit should be returned in its original conditions and that components identical to the original components are used. The safety components are indicated by the symbol ⚠.

2. In order to prevent damage to **ICs** and transistors, all high-voltage flash-overs must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 3.1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is **0 V** (after approx. 30s).

3. **ESD** ⚠
All ICs and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten the life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the earth of the unit. Keep components and tools also at this same potential.

4. When repairing a unit, always connect it to the mains voltage via an isolating transformer.

5. Be careful when taking measurements in the high-voltage section and on the picture tube panel.

6. It is recommended that safety goggles are worn when replacing the picture tube.

7. When making settings, use plastic rather than metal tools.
This will prevent any short-circuit and the danger of a circuit becomes unstable.

8. Never replace modules or other components while the unit is switched on.

9. After repair the wiring should be fastened once more in the cable clamps for this purpose.

10. It is recommended to connect first the cameras to the camera inputs, before switching on the monitor. In this way you can prevent short circuit of camera input during camera connection and therefore prevent damaging of input transistor.

11. When no input signals are connected to the monitor, the screen will be blanked.

Notes

1. The direct voltages and oscillograms are average voltages. They have been measured by using a pattern generator and under the following conditions:
- Signal pattern: grey-scale
- Adjust brightness and contrast control for the mechanical mid-position (click position)
- Volume control in minimum position

Remark: Apply pattern generator via a capacitor of 4.7nF to camera inputs for DC blocking.

2. The semiconductors indicated in the circuit diagram(s) and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

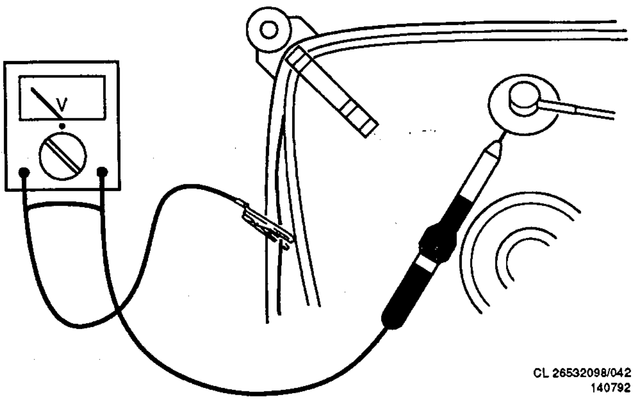


Fig. 3.1

3. The print layouts of panels are same as those of VSS3440. But VSS2440 is without 2-way sound (except VS24415R version) and alarm features. Thus, various components associated with alarm and 2-way sound shown in the print layout, may actually NOT be present on the panels of VSS2440.

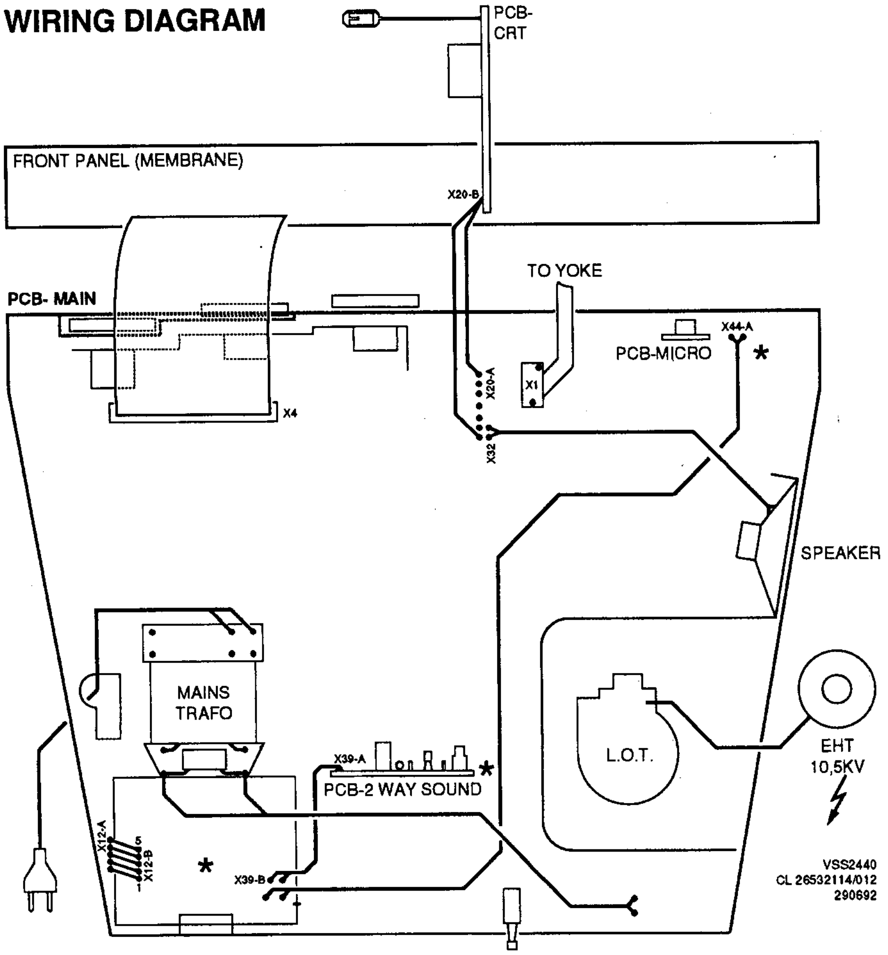
4.1 VSS2440 Mechanical instructions

1. Service position of Main PCB

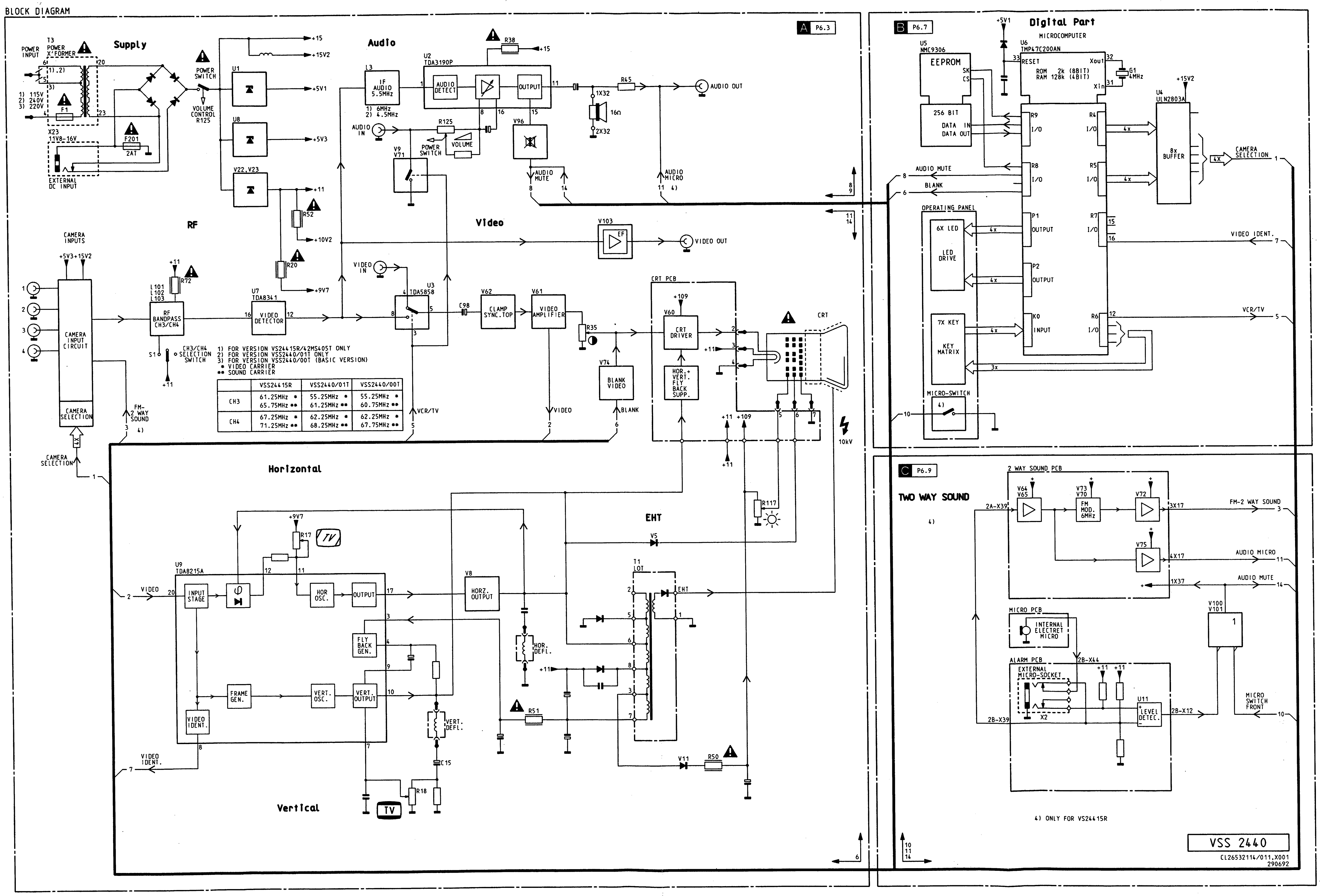
Remove back cover (2 screws)
- Remove main PCB from bottom plate (2 screws).
- Remove operating membrane connection from Main PCB.
- Main PCB can put in a vertical service position now.

Remark: The Main PCB can only checked now for position "Camera 1".
When also other functions have to be tested, a separate operating membrane have to be connected to the Main PCB. For the service code of the operating membrane see item 13 in the exploded view drawing.

WIRING DIAGRAM

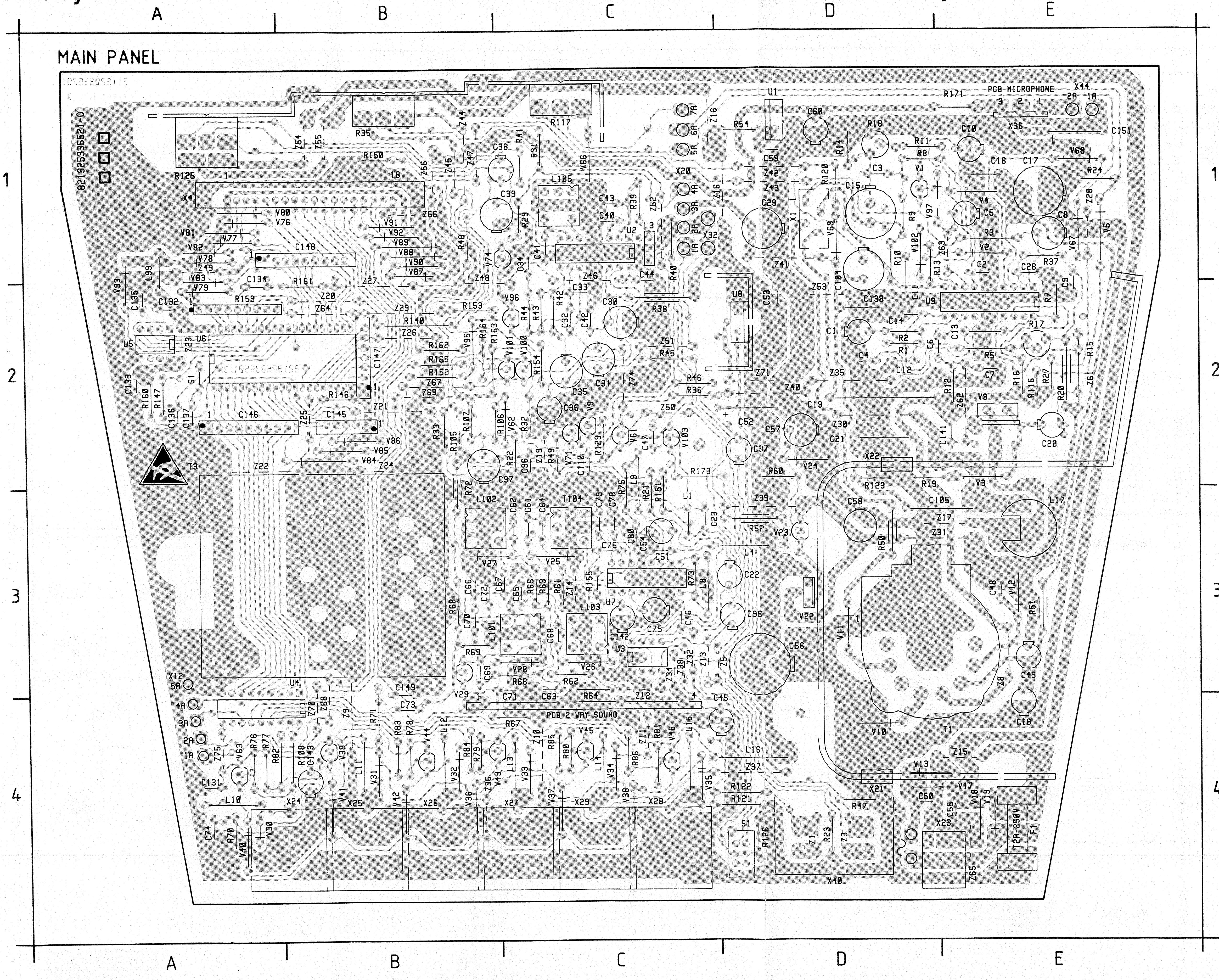

PCB-
CRT
FRONT PANEL (MEMBRANE)
X20-B
TO YOKE
PCB- MAIN
X4
X20-A
X1
X32
X44-A
PCB-MICRO
*
SPEAKER
MAINS
TRAFO
L.O.T.
EHT
10,5KV
X39-A
*
PCB-2 WAY SOUND
X12-A
5
X12-B
1
*
X39-B
VSS2440
CL 26532114/012
290692

* only for VS24415R


BLOCK DIAGRAM
A P6.3
Supply
POWER INPUT
T3 POWER X'FORMER
1) 115V
2) 240V
3) 220V
F1
X23 11V8-16V
F201 2AT
EXTERNAL DC INPUT
POWER SWITCH
VOLUME CONTROL R125
U1
U8
V22,V23
+15
+15V2
+5V1
+5V3
+11
R52
+10V2
R20
+9V7
Audio
L3
IF AUDIO 5.5MHz
1) 6MHz
2) 4.5MHz
U2 TDA3190P
AUDIO DETECT
OUTPUT
R38
R45
1X32
16Ω
2X32
AUDIO OUT
AUDIO IN
R125
POWER SWITCH
VOLUME
V9 V71
V96
AUDIO MUTE
AUDIO MICRO
RF
CAMERA INPUTS
+5V3 +15V2
CAMERA INPUT CIRCUIT
CAMERA SELECTION
FM-2 WAY SOUND
CAMERA SELECTION
L101 L102 L103
R72
RF BANDPASS CH3/CH4
S1
CH3/CH4 SELECTION SWITCH
U7 TDA8341
VIDEO DETECTOR
Video
V103
EF
VIDEO OUT
VIDEO IN
U3 TDA5858
VCR/TV
C98
V62 CLAMP SYNC.TOP
V61 VIDEO AMPLIFIER
R35
V74 BLANK VIDEO
VIDEO
BLANK
CRT PCB
+109
V60 CRT DRIVER
HOR.+ VERT. FLY BACK SUPP.
CRT
10kV
R117
Horizontal
EHT
V5
+9V7
R17
TV
U9 TDA8215A
VIDEO
INPUT STAGE
HOR OSC.
OUTPUT
FLY BACK GEN.
FRAME GEN.
VERT. OSC.
VERT. OUTPUT
VIDEO IDENT.
V8 HORZ. OUTPUT
HOR. DEFL.
VERT. DEFL.
C15
R18
Vertical
T1 LOT
EHT
R51
V11
R50
B P6.7
+5V1
Digital Part
MICROCOMPUTER
U5 NMC9306
EEPROM
SK
CS
256 BIT
DATA IN
DATA OUT
U6 TMP47C200AN
RESET
Xout
ROM 2k (8BIT)
RAM 128k (4BIT)
Xin
G1 4MHz
R9 I/O
R8 I/O
R4 I/O
R5 I/O
R7 I/O
R6 I/O
P1 OUTPUT
P2 OUTPUT
K0 INPUT
+15V2
U4 ULN2803A
8x BUFFER
CAMERA SELECTION
AUDIO MUTE
BLANK
VIDEO IDENT.
VCR/TV
OPERATING PANEL
6X LED
LED DRIVE
7X KEY
KEY MATRIX
MICRO-SWITCH
C P6.9
TWO WAY SOUND
2 WAY SOUND PCB
2A-X39
V64 V65
V73 V70
FM MOD. 6MHz
V72
V75
3X17
4X17
1X37
FM-2 WAY SOUND
AUDIO MICRO
AUDIO MUTE
V100 V101
MICRO PCB
INTERNAL ELECTRET MICRO
2B-X44
ALARM PCB
EXTERNAL MICRO-SOCKET
X2
U11 LEVEL DETEC.
2B-X12
2B-X39
MICRO SWITCH FRONT
4) ONLY FOR VS24415R
VSS 2440
CL26532114/011.X001
290692

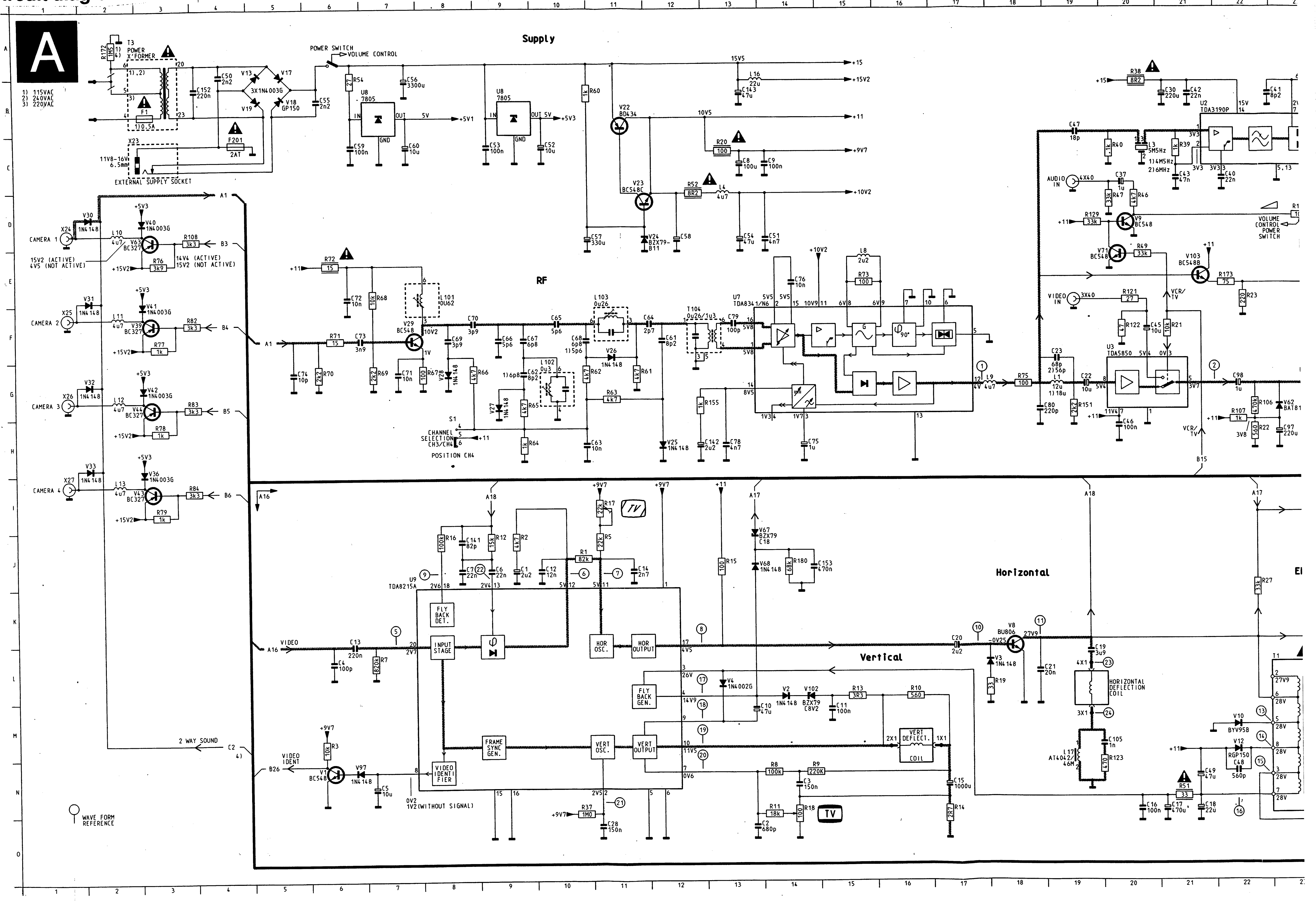
1) FOR VERSION VS24415R/42MS405T ONLY
2) FOR VERSION VSS2440/01T ONLY
3) FOR VERSION VSS2440/00T (BASIC VERSION)
* VIDEO CARRIER
** SOUND CARRIER

	VSS24415R	VSS2440/01T	VSS2440/00T
CH3	61.25MHz * 65.75MHz **	55.25MHz * 61.25MHz **	55.25MHz * 60.75MHz **
CH4	67.25MHz * 71.25MHz **	62.25MHz * 68.25MHz **	62.25MHz * 67.75MHz **

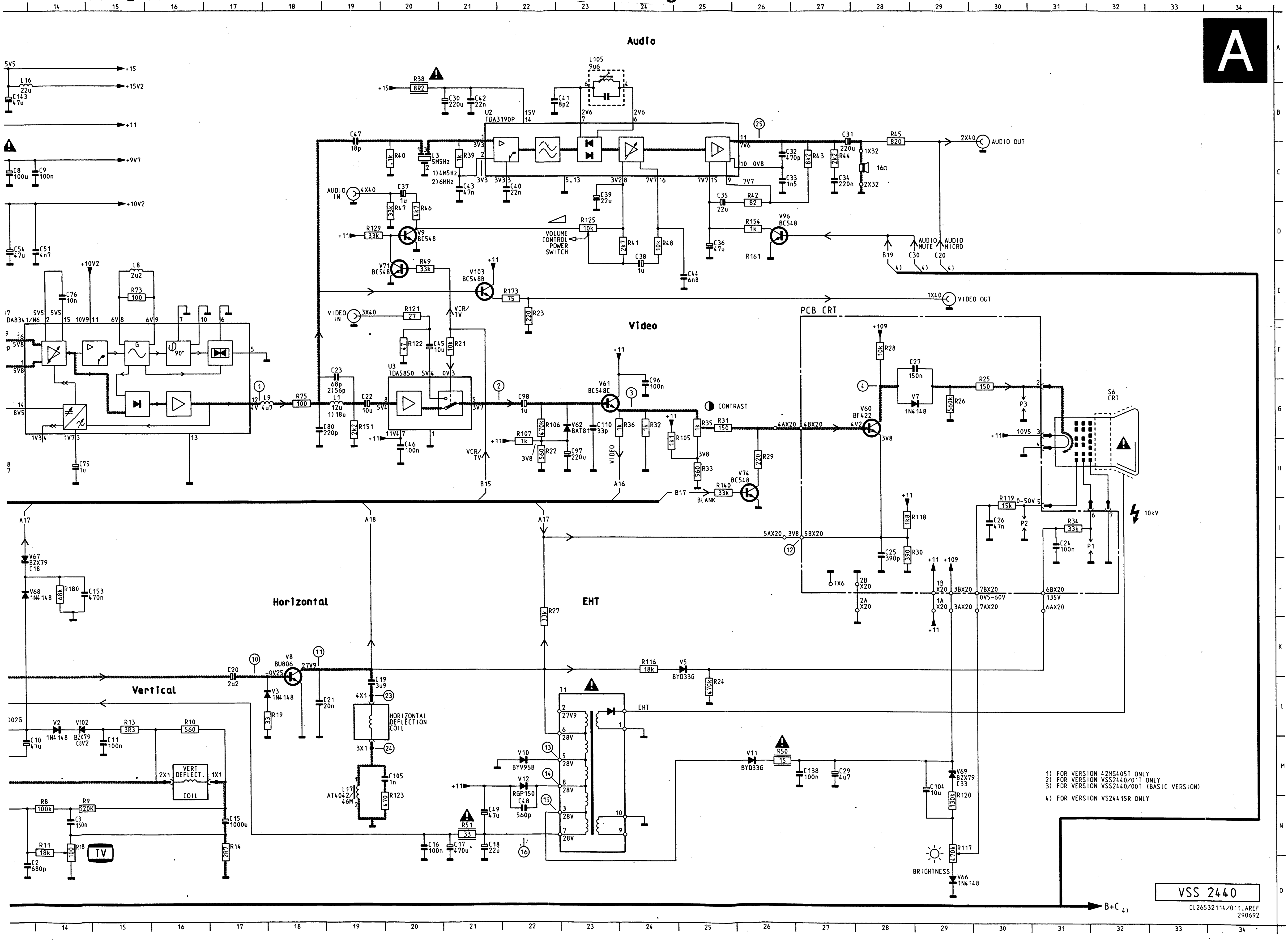


C1	D2	F1	E4	R62	C3	V83	A1
C10	E1	G1	A2	R63	C3	V84	B2
C104	D2	L1	C3	R64	C4	V85	B2
C105	D3	L10	A4	R65	C3	V86	B2
C11	D2	L101	B3	R66	C3	V87	B1
C110	C2	L102	B3	R67	C4	V88	B1
C12	D2	L103	C3	R68	B3	V89	B1
C13	E2	L105	C1	R69	B3	V9	C2
C131	A4	L11	B4	R7	E2	V90	B1
C132	A2	L12	B4	R70	A4	V91	B1
C133	A2	L13	C4	R71	B4	V92	B1
C134	A1	L14	C4	R72	B2	V93	A1
C135	A2	L15	C4	R73	C3	V95	B2
C136	A2	L16	D4	R75	C2	V96	C2
C137	A2	L17	E3	R76	A4	V97	D1
C138	D2	L3	C1	R77	A4	X1	D1
C14	D2	L4	D3	R78	B4	X12	A3
C141	E2	L8	C3	R79	B4	X20	C1
C142	C3	L9	C2	R8	D1	X21	D4
C143	B4	L99	A1	R80	C4	X22	D2
C145	B2	R1	D2	R81	C4	X23	D4
C146	A2	R10	D1	R82	A4	X24	B4
C147	B2	R105	B2	R83	B4	X25	B4
C148	B1	R106	C2	R84	B4	X26	B4
C149	B3	R107	B2	R85	C4	X27	C4
C15	D1	R108	B4	R86	C4	X28	C4
C151	E1	R11	D1	R9	D1	X29	C4
C16	E1	R116	E2	S1	D4	X32	C1
C17	E1	R117	C1	T1	E4	X36	E1
C18	E4	R12	E2	T104	C3	X4	A1
C19	D2	R120	D1	T3	A2	X40	D4
C2	E1	R121	D4	U1	D1	X44	E1
C20	E2	R122	D4	U2	C1	Z1	D4
C21	D2	R123	D2	U3	C3	Z10	C4
C22	D3	R125	A1	U4	B3	Z11	C4
C23	C3	R126	D4	U5	A2	Z12	C4
C28	E1	R129	C2	U6	A2	Z13	C3
C29	D1	R13	D1	U7	C3	Z14	C3
C3	D1	R14	D1	U8	D1	Z15	E4
C30	C2	R140	B2	U9	D2	Z17	D3
C31	C2	R147	A2	V1	D1	Z18	C1
C32	C2	R149	C2	V10	D4	Z19	C2
C33	C2	R15	E2	V100	C2	Z20	B2
C34	C1	R150	B1	V101	C2	Z21	B2
C35	C2	R151	C3	V102	D1	Z22	A2
C36	C2	R152	B2	V103	C2	Z23	A2
C37	D2	R153	B2	V11	D3	Z24	B2
C38	C1	R154	C2	V12	E3	Z25	B2
C39	C1	R155	C3	V13	D4	Z26	B2
C4	D2	R159	A2	V17	E4	Z27	B2
C40	C1	R16	E2	V18	E4	Z28	E1
C41	C1	R160	A2	V19	E4	Z29	B2
C42	C2	R161	B2	V2	E1	Z3	D4
C43	C1	R162	B2	V22	D3	Z30	D2
C44	C1	R163	B2	V23	D3	Z31	D3
C45	C4	R164	B2	V24	D2	Z32	C3
C46	C3	R164	B2	V25	C3	Z34	C3
C47	C2	R165	B2	V26	C3	Z35	D2
C48	E3	R17	E2	V27	B3	Z36	B4
C49	E3	R171	E1	V28	C3	Z37	D4
C50	D4	R173	C2	V29	B4	Z38	C3
C51	C3	R18	D1	V3	E2	Z39	D3
C52	D2	R19	D2	V30	A4	Z40	D2
C53	D1	R2	D2	V31	B4	Z41	D1
C54	C3	R20	E2	V32	B4	Z42	D1
C56	D3	R21	C3	V33	C4	Z43	D1
C57	D2	R22	C2	V34	C4	Z44	B1
C58	D3	R23	D4	V37	C4	Z45	B1
C59	D1	R24	E1	V38	C4	Z46	C1
C6	D2	R27	E2	V39	B4	Z47	B1
C60	D1	R29	C1	V4	E1	Z48	B2
C61	C3	R3	E1	V40	A4	Z49	A1
C62	C3	R31	C1	V41	B4	Z5	D3
C63	C4	R32	C2	V42	B4	Z50	C2
C64	C3	R33	B2	V43	B4	Z51	C2
C65	C3	R35	B1	V44	B4	Z52	C1
C66	B3	R36	C2	V45	C4	Z53	D2
C67	B3	R37	E1	V46	C4	Z54	B1
C68	C3	R38	C2	V5	E1	Z55	B1
C69	B3	R39	C1	V61	C2	Z56	B1
C7	E2	R40	C1	V62	C2	Z61	E2
C70	B3	R41	C1	V63	A4	Z62	E2
C71	C4	R42	C2	V66	C1	Z64	B2
C72	B3	R43	C2	V67	E1	Z65	E4
C73	B4	R44	C2	V68	E1	Z66	B1
C74	A4	R45	C2	V69	D1	Z67	B2
C75	C3	R46	C2	V71	C2	Z68	B4
C76	C3	R47	D4	V74	B1	Z69	B2
C78	C3	R48	B1	V76	B1	Z70	B4
C79	C3	R5	E2	V77	A1	Z71	D2
C8	E1	R50	D3	V78	A1	Z74	C2
C80	C3	R51	E3	V79	A2	Z75	A4
C9	E2	R52	D3	V8	E2	Z8	E3
C96	C2	R54	D1	V80	B1	Z9	B4
C97	B2	R60	D2	V81	A1		
C98	D3	R61	C3	V82	A1		

*** See note 3 on page 3.1 (C153, C154 and R180 are on cupperside).**


A
Supply
RF
Horizontal
Vertical
T3 POWER X'FORMER
1) 115VAC
2) 240VAC
3) 220VAC
F1 1) 0.5A
F201 2AT
X23
11V8-16V 6.5mm
EXTERNAL SUPPLY SOCKET
POWER SWITCH
VOLUME CONTROL
V13 V17 V18 V19 3X1N4003G GP150
C50 2n2
C152 220n
C55 2n2
R54 27
C56 3300u
U8 7805
C59 100n
C60 10u
U8 7805
C53 100n
C52 10u
+5V1
+5V3
+15
+15V2
+11
+9V7
+10V2
15V5
10V5
L16 22u
C143 47u
R60 1k
V22 BD434
R20 100
C8 100u
C9 100n
V23 BC548C
R52 8R2
L4 4u7
C57 330u
V24 BZX79-B11
C58
C54 47u
C51 4n7
CAMERA 1
CAMERA 2
CAMERA 3
CAMERA 4
X24 X25 X26 X27
V30 V31 V32 V33 1N4148
L10 L11 L12 L13 4u7
V40 V41 V42 V36 1N4003G
V63 V39 V44 V43 BC327
R108 3k3
R76 3k9
R82 3k3
R77 1k
R83 3k3
R78 1k
R84 3k3
R79 1k
15V2 (ACTIVE)
4V5 (NOT ACTIVE)
14V4 (ACTIVE)
15V2 (NOT ACTIVE)
+5V3
+15V2
A1 B3 B4 B5 B6
2 WAY SOUND
C2
R72 15
C72 10n
R68 10k
L101 0U62
V29 BC548
R71 15
C73 3n9
C74 10p
R70 2k2
R69 2k2
C71 10n
R67 100
C69 3p9
V28 1N4148
R66 4k7
C70 3p9
C66 5p6
C67 6p8
C65 5p6
L103 0U26
C68 6p8 1) 5p6
C62 8p2 1) 6p8
L102 0U3
V27 1N4148
R65 4k7
R64 1k
R62 4k7
V26 1N4148
R61 4k7
R63 4k7
C63 10n
C64 2p7
C61 8p2
V25 1N4148
T104 0U26/1U3
C79 100p
R155 1k
C142 2u2
C78 4n7
U7 TDA8341/N6
C76 10n
L8 2u2
R73 100
C75 1u
S1 CHANNEL SELECTION CH3/CH4
POSITION CH4
L9 4u7
R75 100
R38 8R2
C30 220u
C42 22n
U2 TDA3190P
C41 8p2
C47 18p
R40 1k
L3 5M5Hz 1) 4M5Hz 2) 6MHz
R39 1k
C43 47n
C40 22n
AUDIO IN 4X40
C37 1u
R47 33k
R46 4k7
R129 33k
V9 BC548
VOLUME CONTROL POWER SWITCH
V71 BC548
R49 33k
V103 BC548B
R173 75
R23 220
VIDEO IN 3X40
R121 27
R122 4k7
C45 10u
R21 10k
VCR/TV
C23 68p 2) 56p
L1 12u 1) 18u
C22 10u
U3 TDA5850
C80 220p
R151 2k2
C46 100n
C98 1u
R106 470k
V62 BAT81
R107 1k
R22 560
C97 220u
B15
A16 A17 A18
VIDEO
C13 220n
C4 100p
R7 820k
U9 TDA8215A
INPUT STAGE
FLY BACK DET.
HOR OSC.
HOR OUTPUT
FLY BACK GEN.
FRAME SYNC GEN.
VERT OSC.
VERT OUTPUT
VIDEO IDENTI FIER
R16 100k
C141 82p
R12 15k
R2 4k7
R17 22k
R5 22k
R1 82k
C7 22n
C6 22n
C1 2u2
C12 12n
C14 2n7
R15 100
V67 BZX79 C18
V68 1N4148
R180 68k
C153 470n
V4 1N4002G
V2 1N4148
V102 BZX79 C8V2
C10 47u
C11 100n
R13 3R3
R10 560
VERT DEFLECT. COIL
R8 100k
R9 220K
C3 150n
C15 1000u
R11 18k
R18 100
C2 680p
R14 2R7
R37 1M0
C28 150n
VIDEO IDENT B26
R3 10k
V1 BC548
V97 1N4148
C5 10u
0V2 1V2 (WITHOUT SIGNAL)
TV
C20 2u2
V8 BU806
V3 1N4148
R19 33
C21 20n
C19 3u9
HORIZONTAL DEFLECTION COIL
4X1 3X1
L17 AT4042/46M
C105 1n
R123 470
R27 33k
T1
V10 BYV95B
V12 RGP150
C48 560p
C49 47u
R51 33
C16 100n
C17 470u
C18 22u
WAVE FORM REFERENCE

Circuit diagram



1) FOR VERSION 42MS405T ONLY
2) FOR VERSION VSS2440/01T ONLY
3) FOR VERSION VSS2440/00T (BASIC VERSION)
4) FOR VERSION VS24415R ONLY

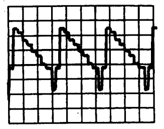
VSS 2440

CL26532114/011.AREF
290692

C1	J 9	C153	J14	R106	G22
C1	J 9	C153	J14	R107	G22
C2	O13	C62.	G 9	R108	D 3
C2	O13	F1	B 3	R116	K24
C3	N14	F201	C 4	R116	K24
C3	N14	L1	G19	R117	N29
C4	L 6	L3	C20	R117	N29
C4	L 6	L4	D13	R118	I28
C5	N 7	L8	E15	R119	I30
C5	N 7	L9	G18	R120	M29
C6	J 9	L10	D 2	R120	M29
C6	J 9	L11	F 2	R121	E20
C7	J 8	L12	G 2	R122	F20
C7	J 8	L13	I 2	R123	M20
C8	C13	L16	B13	R123	M20
C9	C14	L17	M19	R125	D23
C10	M13	L17	M19	R129	D19
C10	M13	L101	E 8	R140	H25
C11	M15	L102	G10	R151	G19
C11	M15	L103	E11	R154	D26
C12	J10	L105	A23	R154	D26
C12	J10	R1	J10	R155	G13
C13	K 6	R1	J10	R161	D26
C13	K 6	R2	J 9	R172	A 2
C14	J11	R2	J 9	R173	E22
C14	J11	R3	M 6	R180	J14
C15	N17	R3	M 6	R180	J14
C15	N17	R5	J11	S1	H 8
C16	N20	R5	J11	S6	G32
C16	N20	R7	L 7	T1	L22
C17	N21	R7	L 7	T1	L22
C17	N21	R8	N14	T3	A 2
C18	N21	R8	N14	T104	F12
C18	N21	R9	N14	U2	B21
C19	L19	R9	N14	U3	F20
C19	L19	R10	L16	U7	E13
C20	K17	R10	L16	U8	B 7
C20	K17	R11	N14	U8	B 9
C21	L18	R11	N14	U9	J 7
C21	L18	R12	J 9	U9	J 7
C22	G19	R12	J 9	V1	N 6
C23	F19	R13	L15	V1	N 6
C24	I31	R13	L15	V2	L14
C25	I28	R14	N17	V2	L14
C26	I30	R14	N17	V3	L18
C27	F29	R15	J13	V3	L18
C28	O11	R15	J13	V4	L13
C28	O11	R16	J 8	V4	L13
C29	M27	R16	J 8	V5	K25
C29	M27	R17	I11	V5	K25
C30	B21	R17	I11	V7	G29
C31	B27	R18	N14	V8	K18
C32	C26	R18	N14	V8	K18
C33	C26	R19	L18	V9	D20
C34	C27	R19	L18	V10	M22
C35	C25	R20	C13	V10	M22
C36	D25	R21	F21	V11	M26
C37	C20	R22	H22	V11	M26
C38	E24	R23	E22	V12	M22
C39	C23	R24	L25	V12	M22
C40	C22	R24	L25	V13	A 5
C41	B23	R25	G30	V17	A 5
C42	B21	R26	G29	V18	B 5
C43	C21	R27	J22	V19	B 5
C44	E25	R27	J22	V22	B11
C45	F20	R28	F28	V23	C11
C46	H20	R29	H26	V24	D12
C47	B19	R30	I28	V25	H12
C48	N22	R31	G25	V26	F11
C48	N22	R32	G24	V27	G 9
C49	N21	R33	H25	V28	G 8
C49	N21	R34	I31	V29	F 7
C50	A 4	R35	G25	V30	D 2
C51	D14	R36	G24	V31	E 2
C52	C10	R37	N10	V32	G 2
C53	C 9	R37	N10	V33	H 2
C54	D13	R38	B20	V36	H 3
C55	B 6	R39	C21	V39	F 3
C56	B 7	R40	C20	V40	D 3
C57	D11	R41	D24	V41	F 3
C58	D12	R42	C26	V42	G [illegible]
C59	C 6	R43	C27	V43	I 3
C60	C 7	R45	B28	V44	G 3
C61	F12	R46	D20	V60	G28
C63	H11	R47	D20	V61	G23
C64	F12	R48	D24	V62	G23
C65	F10	R49	E20	V63	D 3
C66	F 9	R50	M26	V66	O29
C67	F 9	R50	M26	V66	O29
C68	F10	R51	N21	V67	J13
C69	F 8	R51	N21	V67	J13
C70	F 8	R52	C12	V68	J13
C71	G 7	R54	B 6	V68	J13
C72	E 6	R60	B11	V69	M29
C73	F 6	R61	G11	V69	M29
C74	G 5	R62	G11	V71	E20
C75	H14	R63	G11	V74	H26
C76	E14	R64	H 9	V96	D26
C78	H13	R65	G 9	V97	N 6
C79	F13	R66	G 9	V97	N 6
C80	G18	R67	G 8	V102	L14
C96	G24	R68	E 7	V102	L14
C97	H23	R69	G 7	V103	E21
C98	G22	R70	G 6	X23	C 2
C104	M29	R71	F 6	X24	D 1
C104	M29	R72	E 6	X25	F 1
C105	M20	R73	E15	X26	G 1
C105	M20	R75	G18	X27	I 1
C110	G23	R76	E 3		
C138	M27	R77	F 3		
C138	M27	R78	H 3		
C141	J 8	R79	I 3		
C141	J 8	R82	F 3		
C142	H13	R83	G 3		
C143	B13	R84	I 3		
C152	B 4	R105	H24		

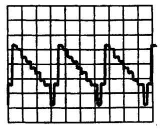
6.8 VSS2440 Wave forms

① 12U7



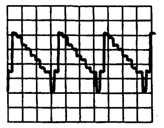
0,5 V/div DC
20 uS/div

② 5U3



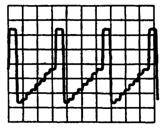
0,5 V/div AC
20 uS/div

③ EV61



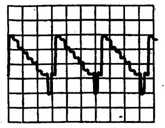
0,5 V/div AC
20 uS/div

④ CV60



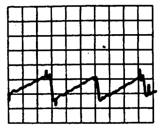
10 V/div AC
20 uS/div

⑤ 20U9



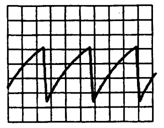
0,5 V/div AC
20 uS/div

⑥ 12U9



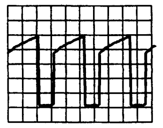
0,1 V/div AC
20 uS/div

⑦ 11U9



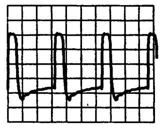
1 V/div AC
20 uS/div

⑧ 17U9



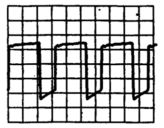
1 V/div AC
20 uS/div

⑨ 18U9



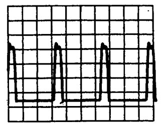
0,5 V/div AC
20 uS/div

⑩ BV8



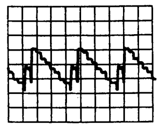
1 V/div AC
20 uS/div

⑪ CV8



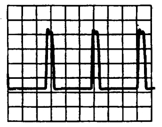
50 V/div AC
20 uS/div

⑫ 5AX20



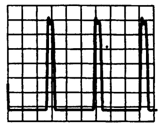
0,5 V/div AC
20 uS/div

⑬ 5T1



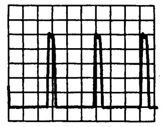
50 V/div AC
20 uS/div

⑭ 8T1



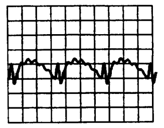
20 V/div AC
20 uS/div

⑮ 3T1



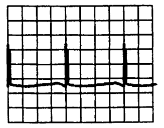
20 V/div AC
20 uS/div

⑯ 7T1



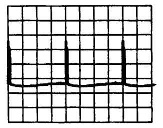
0,2 V/div AC
20 uS/div

⑰ 4U9



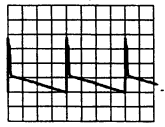
5 V/div AC
5 mS/div

⑱ 9U9



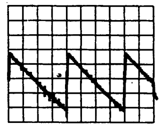
5 V/div AC
5 mS/div

⑲ 10U9



10 V/div AC
5 mS/div

⑳ 7U9

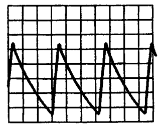


0,1 V/div AC
5 mS/div

㉑ 2U9

0,5 V/div AC
20 uS/div

㉒ 13U9

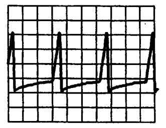


1 V/div AC
20 uS/div

㉓ 4X1

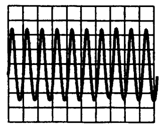
50 V/div AC
20 uS/div

㉔ 3X1



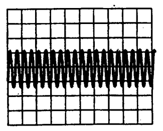
5 V/div AC
20 uS/div

㉕ 11U2



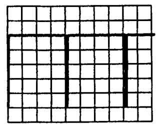
0,5 V/div AC
1 mS/div

㉖ 31U6



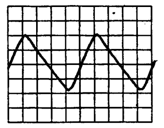
1 V/div AC
0,5 uS/div

㉗ 9U6



1 V/div DC
1 mS/div

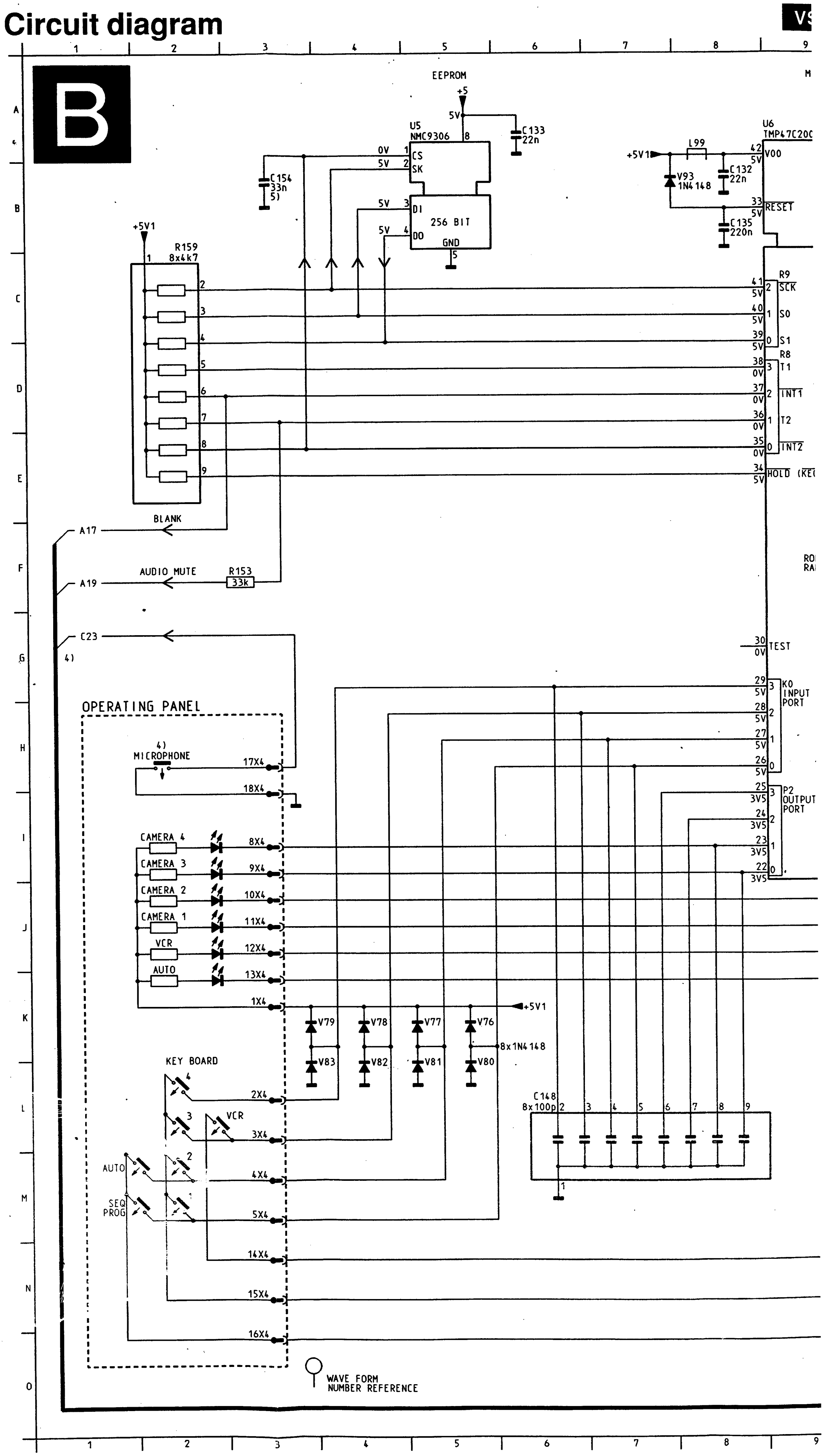
㉘ 3X17 4)

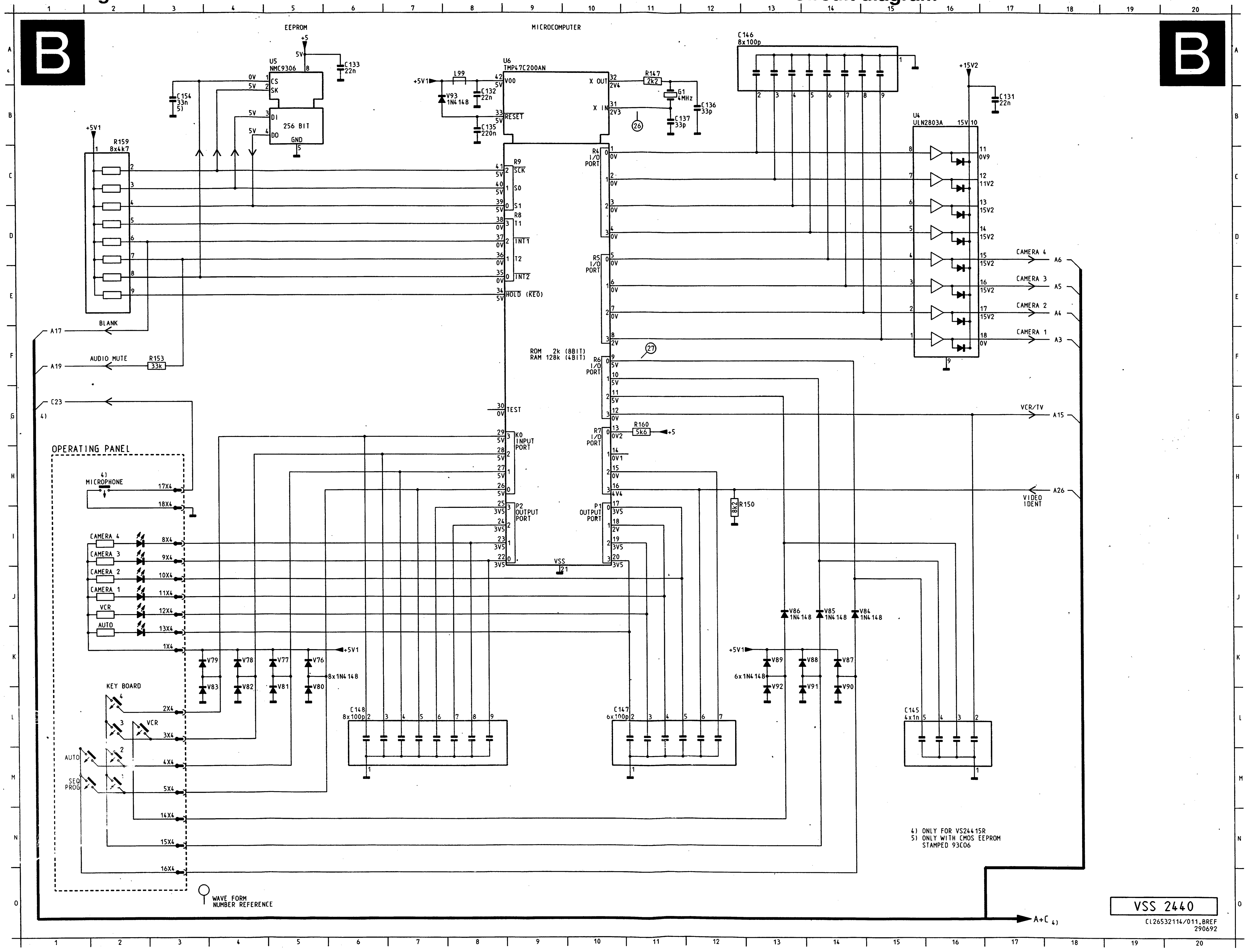


0,5 V/div AC
2 mS/div

4) ONLY FOR VS2441 5R

Circuit diagram


B
EEPROM
U5
NMC9306
256 BIT
GND
C133
22n
C154
33n
5)
R159
8x4k7
+5V1
U6
TMP47C20
L99
V93
1N4148
C132
22n
C135
220n
VDD
RESET
SCK
SO
S1
T1
INT1
T2
INT2
HOLD
TEST
K0
INPUT
PORT
P2
OUTPUT
PORT
R9
R8
A17
BLANK
A19
AUDIO MUTE
R153
33k
C23
OPERATING PANEL
MICROPHONE
17X4
18X4
CAMERA 4
CAMERA 3
CAMERA 2
CAMERA 1
VCR
AUTO
8X4
9X4
10X4
11X4
12X4
13X4
1X4
V79
V78
V77
V76
V83
V82
V81
V80
8x1N4148
KEY BOARD
2X4
3X4
4X4
5X4
14X4
15X4
16X4
SEQ
PROG
C148
8x100p
WAVE FORM
NUMBER REFERENCE


B
EEPROM
U5
NMC9306
256 BIT
CS
SK
DI
DO
GND
MICROCOMPUTER
U6
TMP47C200AN
VDD
RESET
X OUT
X IN
L99
V93
1N4148
C132
22n
C135
220n
R147
2k2
G1
4MHz
C136
33p
C137
33p
C133
22n
C154
33n
5)
R159
8x4k7
+5V1
R9
SCK
SO
SI
R8
T1
INT1
T2
INT2
HOLD (KEO)
R4
I/O
PORT
R5
I/O
PORT
R6
I/O
PORT
R7
I/O
PORT
ROM 2k (8BIT)
RAM 128k (4BIT)
TEST
K0
INPUT
PORT
P2
OUTPUT
PORT
P1
OUTPUT
PORT
VSS
R160
5k6
+5
R150
8k2
C146
8x100p
U4
ULN2803A
+15V2
C131
22n
CAMERA 4
CAMERA 3
CAMERA 2
CAMERA 1
A6
A5
A4
A3
VCR/TV
A15
VIDEO
IDENT
A26
BLANK
A17
AUDIO MUTE
R153
33k
A19
C23
4)
OPERATING PANEL
4)
MICROPHONE
17X4
18X4
CAMERA 4
CAMERA 3
CAMERA 2
CAMERA 1
VCR
AUTO
8X4
9X4
10X4
11X4
12X4
13X4
1X4
KEY BOARD
VCR
AUTO
SEQ
PROG
2X4
3X4
4X4
5X4
14X4
15X4
16X4
V79
V78
V77
V76
V83
V82
V81
V80
8x1N4148
+5V1
C148
8x100p
C147
6x100p
V86
1N4148
V85
1N4148
V84
1N4148
+5V1
V89
V88
V87
6x1N4148
V92
V91
V90
C145
4x1n
WAVE FORM
NUMBER REFERENCE
A+C 4)

4) ONLY FOR VS24415R
5) ONLY WITH CMOS EEPROM
STAMPED 93C06

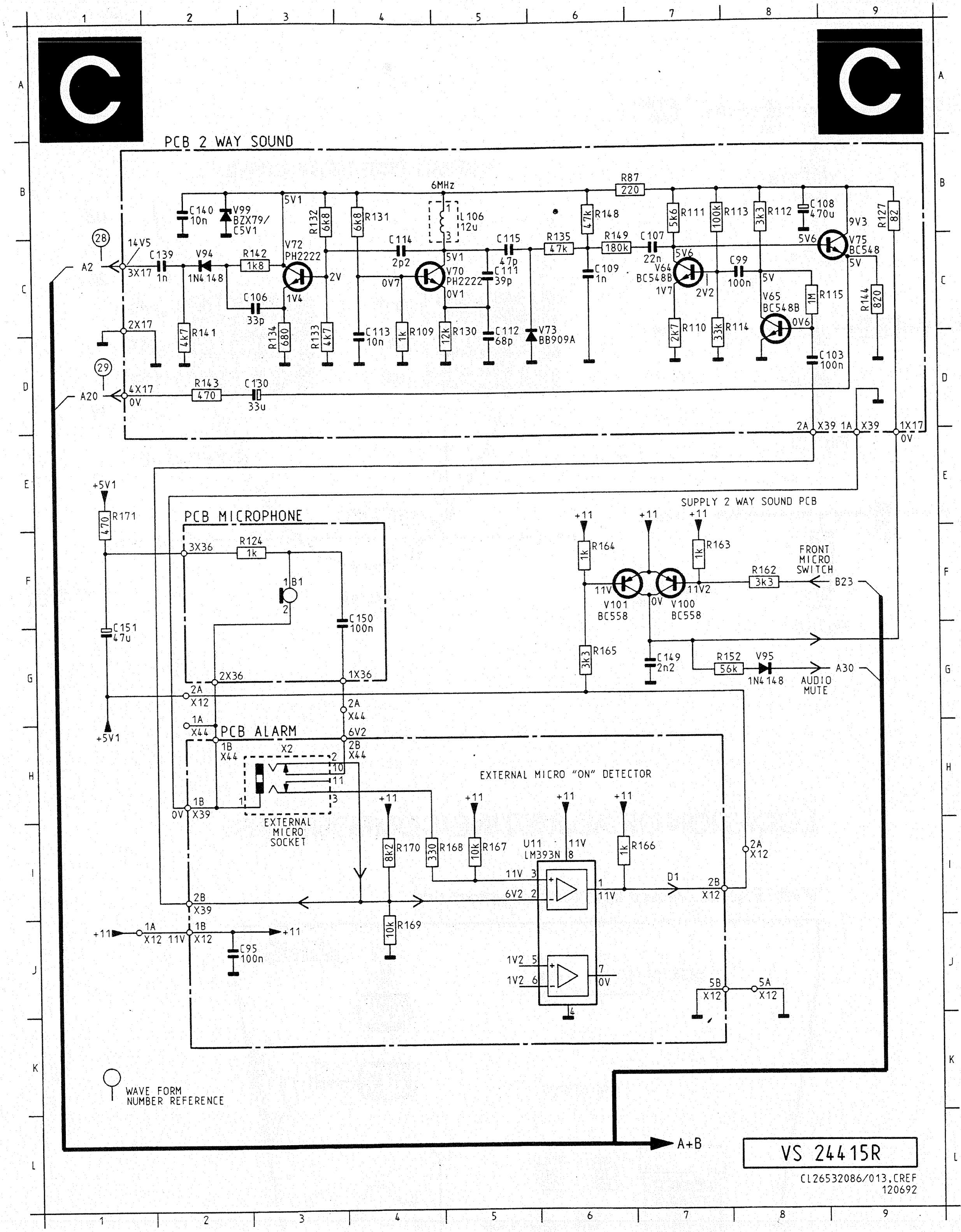
VSS 2440

CL26532114/011,BREF
290692

C131	B17
C132	B 8
C133	A 6
C135	B 8
C136	B12
C137	B11
C145	L15
C146	A12
C147	L11
C148	L 6
C154	B 3
G1	B11
L99	A 8
R147	A11
R150	I12
R153	F 3
R159	B 2
R160	G11
U4	B15
U5	A 5
U6	A 9
V76	K 5
V77	K 5
V78	K 4
V79	K 3
V80	L 5
V81	L 5
V82	L 4
V83	L 3
V84	J14
V85	J14
V86	J13
V87	K14
V88	K14
V89	K13
V90	L14
V91	L14
V92	L13
V93	B 8

Circuit diagram

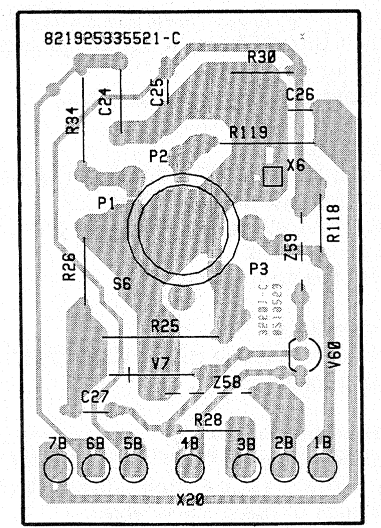
VSS2440 **6.11**


C
PCB 2 WAY SOUND
6MHz
R87 220
C140 10n
V99 BZX79/C5V1
14V5
C139 1n
V94 1N4148
R142 1k8
V72 PH2222
C106 33p
V70 PH2222
L106 12u
C114 2p2
C115 47p
C111 39p
R135 47k
R149 180k
C107 22n
C109 1n
V64 BC548B
C99 100n
V65 BC548B
C108 470u
V75 BC548
R144 820
R127 82
V73 BB909A
C112 68p
C113 10n
C103 100n
R143 470
C130 33u
PCB MICROPHONE
R124 1k
B1
C150 100n
C151 47u
R171 470
+5V1
SUPPLY 2 WAY SOUND PCB
FRONT MICRO SWITCH
R162 3k3
V101 BC558
V100 BC558
R152 56k
V95 1N4148
AUDIO MUTE
C149 2n2
PCB ALARM
EXTERNAL MICRO SOCKET
EXTERNAL MICRO "ON" DETECTOR
U11 LM393N
C95 100n
WAVE FORM NUMBER REFERENCE
A+B
VS 24415R
CL26532086/013.CREF
120692

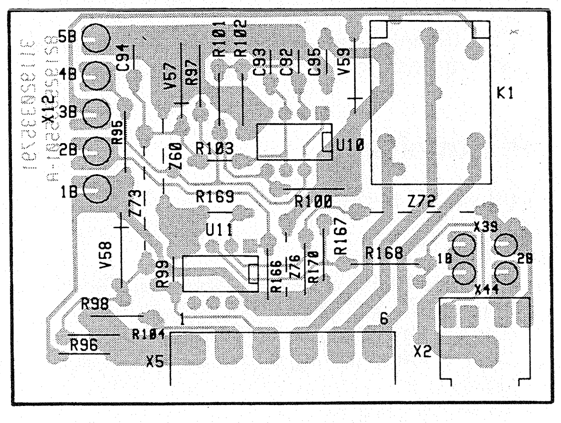
B1	F 3
C95	J 2
C99	C 8
C103	D 8
C106	C 3
C107	C 7
C108	B 8
C109	C 6
C111	C 5
C112	D 5
C113	D 4
C114	C 4
C115	C 5
C130	D 3
C139	C 2
C140	B 2
C149	G 7
C150	F 4
C151	G 1
L106	B 5
R87	B 7
R109	D 4
R110	D 7
R111	B 7
R112	B 8
R113	B 7
R114	D 7
R115	C 8
R124	F 3
R127	B 9
R130	D 5
R131	B 4
R132	B 3
R133	D 3
R134	D 3
R135	C 6
R141	D 2
R142	C 3
R143	D 2
R144	C 9
R148	B 6
R149	C 6
R152	G 7
R162	F 8
R163	F 7
R164	F 6
R165	G 6
R166	I 6
R167	I 5
R168	I 4
R169	J 4
R170	I 4
R171	E 1
U11	I 5
V64	C 7
V65	C 8
V70	C 5
V72	C 3
V73	D 6
V75	C 9
V94	C 2
V95	G 8
V99	B 2
V100	F 7
V101	F 6

6.12 VSS2440 Print lay-out

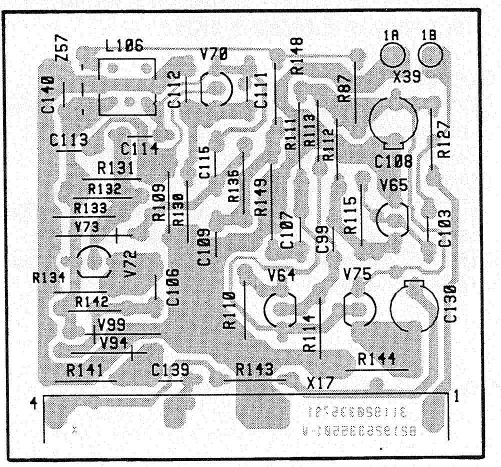
CRT PANEL


821925335521-C
R30
C26
R119
P2
X6
P1
P3
S6
R25
V7
Z58
V60
C27
R28
7B 6B 5B 4B 3B 2B 1B
X20

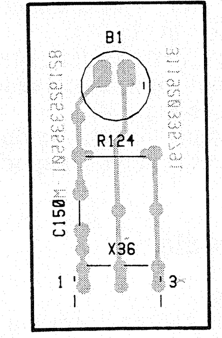
ALARM PANEL


5B
4B
3B
2B
1B
C94
V57
R97
R101
R102
C93
C92
C95
V59
K1
R95
Z60
R103
U10
R169
R100
Z72
U11
V58
R99
R166
Z76
R170
R167
R168
X39
X44
R98
R96
R104
X5
X2

2 WAY SOUND PANEL*


L106
V70
R148
1A 1B
X39
C140
C112
C111
R87
C113
C114
C108
R131
C115
R111
R112
R127
R132
R133
R109
R130
R136
R149
V65
V73
R115
C103
C107
C109
C99
R134
V72
C106
V64
V75
R142
R110
R114
C130
V99
V94
R141
C139
R143
R144
X17

MICROPHONE PANEL*


B1
R124
C150
X36
1
3

* only for VS 24415R
see note 3 on page 3.1

1. General

- All controls in minimum position unless otherwise specified.
- Test signal: From pattern generator, applied via capacitor of 4.7nF for DC blocking.

2. RF-Amplifier

2.1 Picture RF response

2.1.1 Alignment set up.
- Channel selector switch in position CH4.
- Apply a DC voltage of 7V to pin 14 of U7.
- Inject a sweep signal 50-80MHz to camera input 1, via matching circuit as shown in Fig. 7.1
- Select camera 1.
- Connect oscilloscope to capacitor C80 via matching circuit as shown in Fig. 7.2.
- Adjust input signal amplitude so that output on oscilloscope is 1Vpp.

2.1.2 Alignment
- Adjust T104, L101 to maximum gain at
  - 62.25MHz for -/00T/01T
  - 67.25MHZ for -05R
- Adjust L102 so that:
  - 62.25MHz marker is at -1dB for -/00T/01T
  - 67.25MHz marker is at -1dB for -05R
- Adjust L103 so that:
  - 66.25MHz marker is at -6dB for -/00T
  - 66.50MHz marker is at -6dB for -/01T
  - 71.25MHz marker is at -6dB for -05R
- Repeat above 3 steps until a smooth curve is obtained as shown in Fig. 7.4.
- Switch to channel CH3, adjust L102,L103 to make the response curve as close to the nominal value, see Fig. 7.4.
- Repeat above steps, to make an optimum compromise of both channel responses.

3. IF Sound Detector

3.1 Alignment set up
- Test signal: From pattern generator modulated with 1KHz audio signal.
- Connect an oscilloscope at pin 16 of U2 via a matching circuit as shown in Fig. 7.3.

3.2 Alignment
- Adjust sound detector coil L105 so that the 1 KHz sine wave reaches maximum amplitude on oscilloscope.

4. Time base

4.1 Alignment set up
- Supply signal of 625 lines (for -/00T/01T) and 525 lines (for -05R) from pattern generator to camera input 1.
- Brightness control in mid position.

4.2 Line oscillator
- Short circuit capacitor C4 and pin 16 of U6(microprocessor) to ground.
- Adjust R17 so that the picture on the CRT screen is straight.
- Remove the short circuits.

4.3 Frame oscillator
- Adjust the amplitude with R18 so that the circle pattern is symmetrical.

4.4 Picture geometry setting
- Adjust the edges of the picture parallel to the edges of the mask by turning the deflection coil on the neck of the picture tube.
- Situate the picture symmetrically within mask, with help,of the centring magnets on the deflection unit.

5. *2 Way sound board

5.1 Oscillator coil L106
- Connect a counter to panel connection 3-X17 and 2-X17(ground)
- Tune the coil L106 so that the counter reads a frequency of 6.5MHz ± 5KHz.

5.2 Output cheque
- Connect a low frequency generator to panel connection 2A-X39 and 1A-X39(ground). Output voltage generator 4,5mV-1KHz.
- Connect an oscilloscope to 4-X17 and 2-X17(ground). The sine wave signal on the oscilloscope should be 2,7Vpp ± 0,2VPP
- The RF output voltage on 3-X17 should be 3mV (Zo = 50Ω)

* Only for version VS24415R

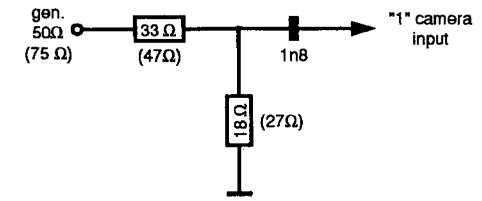


Fig. 7.1

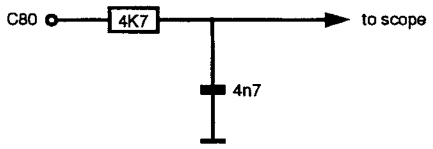


Fig. 7.2

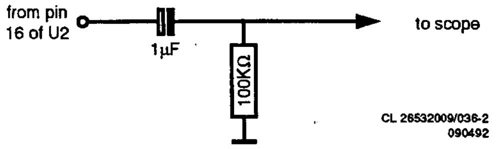


Fig. 7.3

OVERALL PICTURE R.F. CURVE

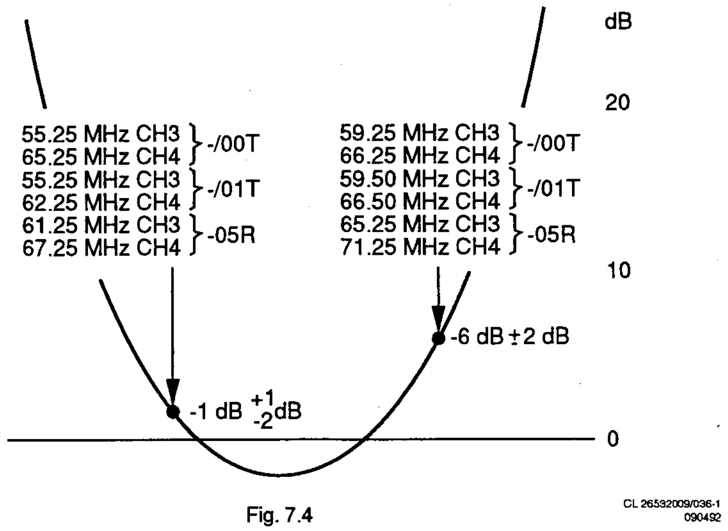
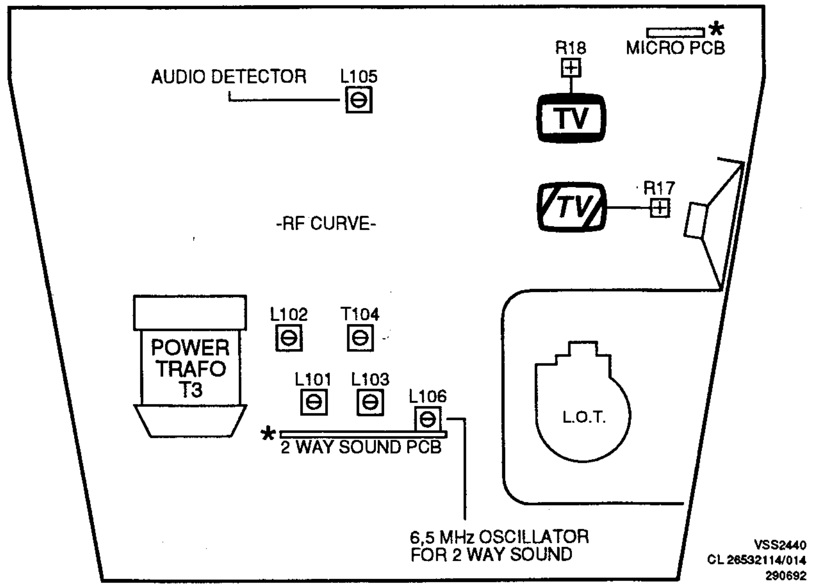


Fig. 7.4

LOCATION OF ADJUSTING COMPONENTS

MAIN PANEL (viewed from the component side)



* only for VS24415R

Supplement

List of changes

List of changes introduced during the production since OP20, chronological per OP code/production week.

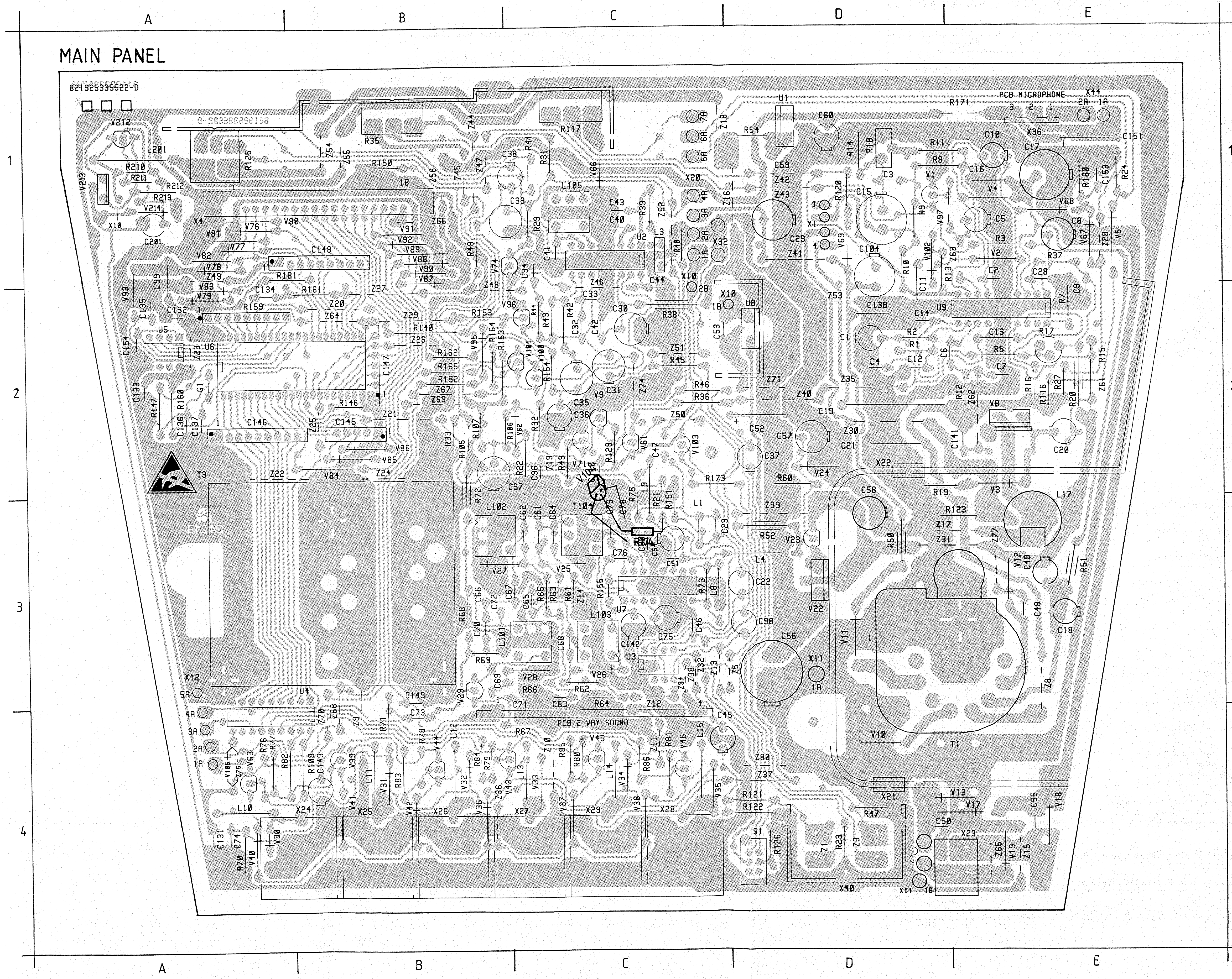
Introduction:	Item:		Service code:
OP30 9424 USA	Changed:	R083 from 3,3 kΩ into 680 Ω	4822 116 52228
		R084 from 3,3 kΩ into 680 Ω	4822 116 52228
		R108 from 3,3 kΩ into 680 Ω	4822 116 52228
		V039 from BC327 into BC327/40	4822 130 41327
		V043 from BC327 into BC327/40	4822 130 41327
		V044 from BC327 into BC327/40	4822 130 41327
		V063 from BC327 into BC327/40	4822 130 41327
		P.W. board for USA from 3128 123 3020**.2** into 3128 123 3020**.3**	
		P.W. board for Europe from 3119 203 3579**.2** into 3119 203 3579**.3**	
	Changed:	For **only** the "enhanged" versions	
		R080 from 1 kΩ into 15 kΩ	4822 116 52244
		R081 from 1 kΩ into 15 kΩ	4822 116 52244
		R085 from 3,3 kΩ into 680 Ω	4822 116 52228
		R086 from 3,3 kΩ into 680 Ω	4822 116 52228
		V045 from BC327 into BC327/40	4822 130 41327
		V046 from BC327 into BC327/40	4822 130 41327
	Add:	R211- 470 Ω	4822 116 52224
		R212- 1 kΩ	4822 050 11002
		R213- 820 Ω	4822 116 52231
		C201- 2,2 µF-63V	4822 124 40244
		V212- BC558C	5322 130 60068
		V213- BD136	4822 130 40824
		V214- BZX79/B9V1	4822 130 30862
		R210- 1 Ω (for VS24415R and "enhanged")	4822 116 80176
		R210- 1,8 Ω (for other types)	4822 116 81039
	Delete:	R201- 560 Ω	
		R202- 220 Ω	
		R203- 47 KΩ	
		R204- 1 KΩ	
		R205- 1 KΩ	
		R206- 22 Ω	
		R207- 75 Ω	
		V201- BZX79/C2V4	
		V202- BC548	
		V203- BD434	
		V204- 1N4148	
OP.. 9402 USA	**All models**		
	Changed:	C021 from 22 nF into 22 nF	4822 121 70215
OP.. 9404	**All models**		
	Changed:	L017 form 3128 138 50091	4822 157 71071
OP.. 9408 Europe	**All models**		
	Changed:	C021 from 20 nF into 20 nF	4822 121 70546
OP.. 9409	**All USA models**		
	Changed:	C028 form 150 nF into 220 nF	4822 121 41673
		R037 from 1 MΩ into 680 kΩ	4822 116 52298
OP.. 9410	**All models (Excluding Slave)**		
	Delete:	C154 - 33 nF	
OP.. 9411	**All models (except USA)**		
	Changed:	R037 from 820 kΩ into 680 kΩ	4822 116 52298
OP.. 9412	**All monitors except the Slave**		
	Changed:	U505 from NM93C06N into ST93C06	4822 209 31168
OP.. 9413	**All models**		
	Changed:	V022 from BD202 into BD708	4822 130 63711
OP.. 9415	**All VSS4440 models**		
	Changed:	the test instructions (page 161) are adapted	
OP.. 9423	**All models for USA**		
	Changed:	the material of the P.W. board From FR4 3128 123 3020**.3** into CEM1 3128 123 3021**.2**	
OP35 9424	**All models**		
	Changed:	The CRT from 310BAB4 into A31-322W	4822 150 10172
		C021 from 22 nF into 27 nF	4822 121 43915
		C021 from 20 nF into 27 nF	4822 121 43915
	All USA monitors		
	The P.W. board from 3128 123 3020**.3** into 3128 123 3021**.2**		
OP.. 9429	**All models for USA**		
	Changed:	L102 from 3138 108 72400 into 3138 108 72411	4822 156 21357
OP.. 9430	**All models**		
	Changed:	CRT from A31-322W/A-76K into A31-322W/AZ-76K	4822 131 20473

Survey of used OP.. codes

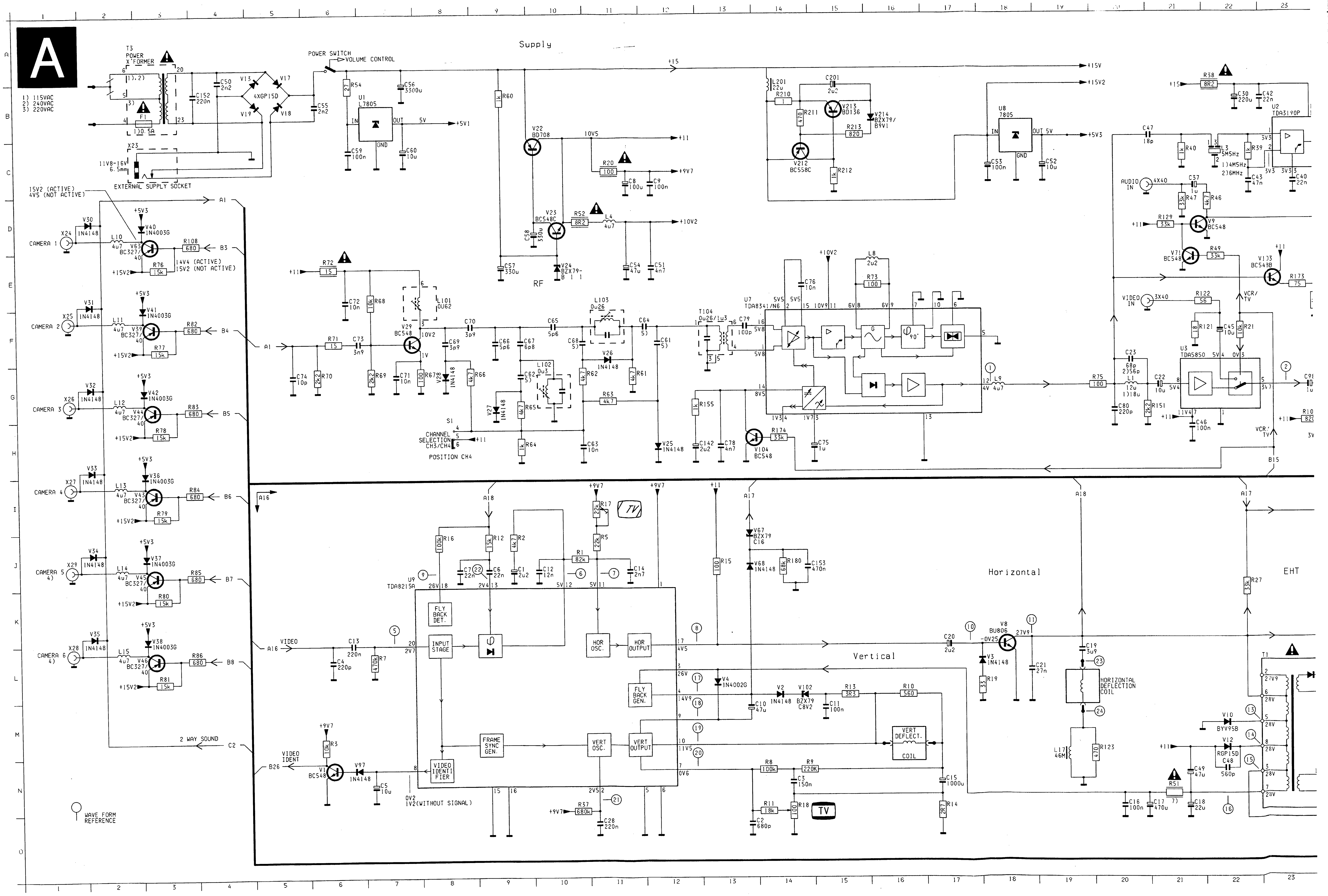
SURVEY OF THE VM4 "OP.." CODES

OP..:	Introduction:	Main reason:
OP00	9210	Sart production
OP01	9219	Programming problems
OP10	9235	Short-circuit panel & fuse
OP11	9247	PWB breakage prevention kit
OP12	9303	VCR date & time setting
OP15	9307	FR4 print material & contrast level
OP20	9311	New LOT & PWB change
OP21	9337	New alarm function
OP25	9416	OP21 + CRT change (for Slave)
OP29	9350	Over current protection (as extra panel)
OP30	9401 (Europe)	Over current protection on PWB
OP30	9424 (USA)	Over current protection on PWB
OP34	9416	= OP29 + CRT change
OP35	9424	= OP30 + CRT change

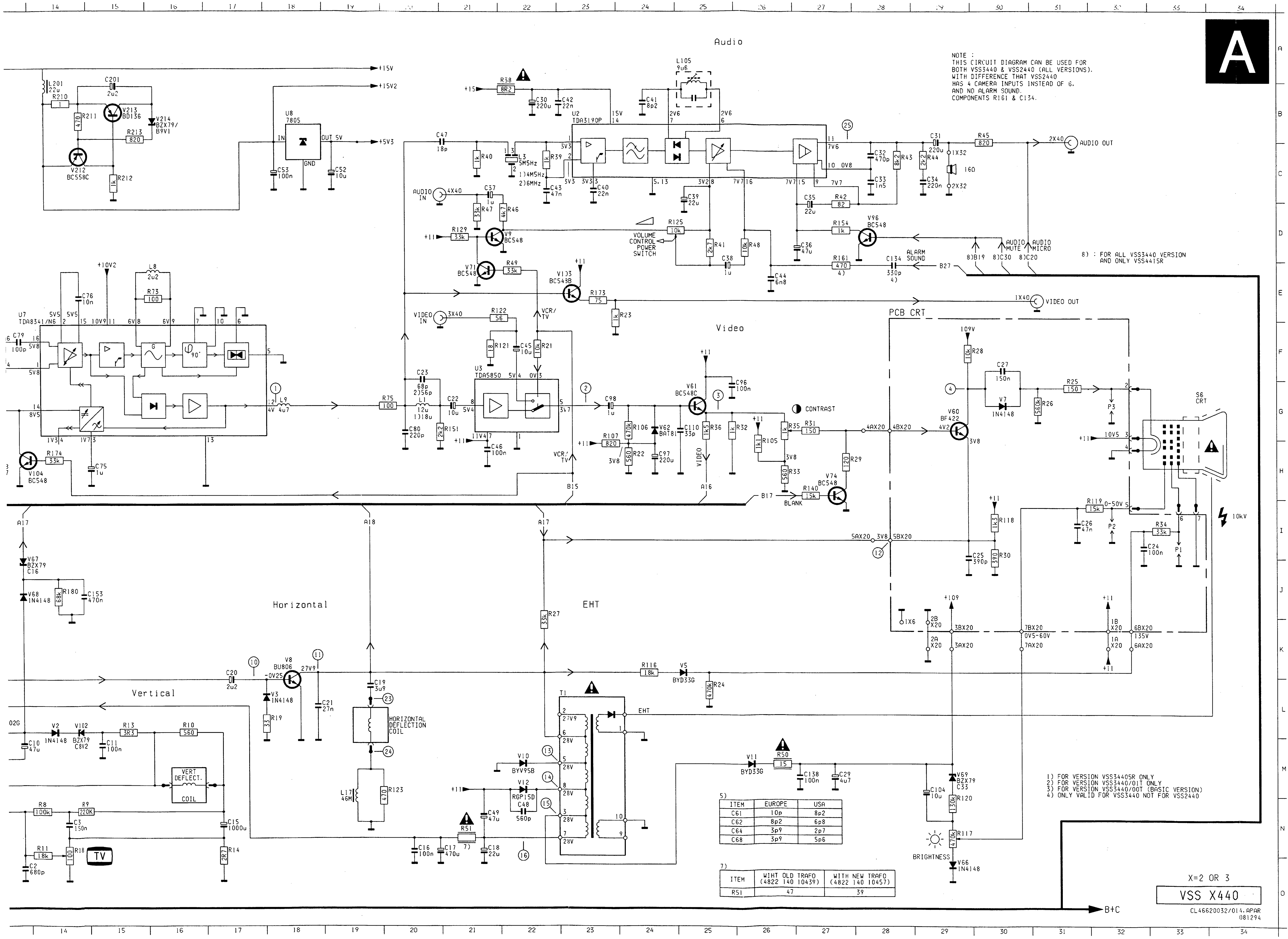
Print layout



C1	D2	L1	C3	R125	A1	V87	B1
C2	E1	L3	C1	R126	D4	V88	B1
C3	D1	L4	D3	R129	C2	V89	B1
C4	D2	L8	C3	R140	B2	V90	B1
C6	D2	L9	C2	R147	A2	V91	B1
C7	E2	L10	A4	R149	C2	V92	B1
C8	E1	L11	B4	R150	B1	V93	A1
C9	E2	L12	B4	R151	C3	V95	B2
C10	E1	L13	C4	R152	B2	V96	C2
C11	D2	L14	C4	R153	B2	V97	D1
C12	D2	L15	C4	R154	C2	V100	C2
C13	E2	L16	D4	R155	C3	V101	C2
C14	D2	L17	E3	R159	A2	V102	D1
C15	D1	L99	A1	R160	A2	V103	C2
C16	E1	L101	B3	R161	B2	V104	C3
C17	E1	L102	B3	R162	B2	V212	A1
C18	E4	L103	C3	R163	B2	V213	A1
C19	D2	L105	C1	R164	B2	X1	D1
C20	E2	R1	D2	R164	B2	X4	A1
C21	D2	R2	D2	R165	B2	X12	A3
C22	D3	R3	E1	R171	E1	X20	C1
C23	C3	R5	E2	R173	C2	X21	D4
C28	E1	R7	E2	R174	C3	X22	D2
C29	D1	R8	D1	R180	E1	X23	D4
C30	C2	R9	D1	R210	A1	X24	B4
C31	C2	R10	D1	R211	A1	X25	B4
C32	C2	R11	D1	R212	A1	X26	B4
C33	C2	R12	E2	R213	A1	X27	C4
C34	C1	R13	D1	R214	A1	X28	C4
C35	C2	R14	D1	S1	D4	X29	C4
C36	C2	R15	E2	T1	E4	X32	C1
C37	D2	R16	E2	T3	A2	X36	E1
C38	C1	R17	E2	T104	C3	X40	D4
C39	C1	R18	D1	U1	D1	X44	E1
C40	C1	R19	D2	U2	C1	Z1	D4
C41	C1	R20	E2	U3	C3	Z3	D4
C42	C2	R21	C3	U4	B3	Z5	D3
C43	C1	R22	C2	U5	A2	Z8	E3
C44	C1	R23	D4	U6	A2	Z9	B4
C45	C4	R24	E1	U7	C3	Z10	C4
C46	C3	R27	E2	U8	D1	Z11	C4
C47	C2	R29	C1	U9	D2	Z12	C4
C48	E3	R31	C1	V1	D1	Z13	C3
C49	E3	R32	C2	V2	E1	Z14	C3
C50	D4	R33	B2	V3	E2	Z15	E4
C51	C3	R35	B1	V4	E1	Z17	D3
C52	D2	R36	C2	V5	E1	Z18	C1
C53	D1	R37	E1	V8	E2	Z19	C2
C54	C3	R38	C2	V9	C2	Z20	B2
C56	D3	R39	C1	V10	D4	Z21	B2
C57	D2	R40	C1	V11	D3	Z22	A2
C58	D3	R41	C1	V12	E3	Z23	A2
C59	D1	R42	C2	V13	D4	Z24	B2
C60	D1	R43	C2	V17	E4	Z25	B2
C61	C3	R44	C2	V18	E4	Z26	B2
C62	C3	R45	C2	V19	E4	Z27	B2
C63	C4	R46	C2	V22	D3	Z28	E1
C64	C3	R47	D4	V23	D3	Z29	B2
C65	C3	R48	B1	V24	D2	Z30	D2
C66	B3	R50	D3	V25	C3	Z31	D3
C67	B3	R51	E3	V26	C3	Z32	C3
C68	C3	R52	D3	V27	B3	Z34	C3
C69	B3	R54	D1	V28	C3	Z35	D2
C70	B3	R60	D2	V29	B4	Z36	B4
C71	C4	R61	C3	V30	A4	Z37	D4
C72	B3	R62	C3	V31	B4	Z38	C3
C73	B4	R63	C3	V32	B4	Z39	D3
C74	A4	R64	C4	V33	C4	Z40	D2
C75	C3	R65	C3	V34	C4	Z41	D1
C76	C3	R66	C3	V37	C4	Z42	D1
C78	C3	R67	C4	V38	C4	Z43	D1
C79	C3	R68	B3	V39	B4	Z44	B1
C80	C3	R69	B3	V40	A4	Z45	B1
C96	C2	R70	A4	V41	B4	Z46	C1
C97	B2	R71	B4	V42	B4	Z47	B1
C98	D3	R72	B2	V43	B4	Z48	B2
C104	D2	R73	C3	V44	B4	Z49	A1
C110	C2	R75	C2	V45	C4	Z50	C2
C131	A4	R76	A4	V46	C4	Z51	C2
C132	A2	R77	A4	V61	C2	Z52	C1
C133	A2	R78	B4	V62	C2	Z53	D2
C134	A1	R79	B4	V63	A4	Z54	B1
C135	A2	R80	C4	V66	C1	Z55	B1
C136	A2	R81	C4	V67	E1	Z56	B1
C137	A2	R82	A4	V68	E1	Z61	E2
C138	D2	R83	B4	V69	D1	Z62	E2
C141	E2	R84	B4	V71	C2	Z64	B2
C142	C3	R85	C4	V74	B1	Z65	E4
C143	B4	R86	C4	V76	B1	Z66	B1
C145	B2	R105	B2	V77	A1	Z67	B2
C146	A2	R106	C2	V78	A1	Z68	B4
C147	B2	R107	B2	V79	A2	Z69	B2
C148	B1	R108	B4	V80	B1	Z70	B4
C149	B3	R116	E2	V81	A1	Z71	D2
C151	E1	R117	C1	V82	A1	Z74	C2
C153	E1	R120	D1	V83	A1	Z75	A4
C154	A2	R121	D4	V84	B2		
C201	A1	R122	D4	V85	B2		
G1	A2	R123	D2	V86	B2		


A
Supply
RF
Horizontal
Vertical
EHT
T3 POWER X'FORMER
1) 115VAC
2) 240VAC
3) 220VAC
F1 T0.5A
X23 11V8-16V 6.5mm
EXTERNAL SUPPLY SOCKET
4XGP15D
V13 V17 V19 V18
C152 220n
C50 2n2
C55 2n2
POWER SWITCH
VOLUME CONTROL
R54 27
U1 L7805
IN OUT 5V GND
+5V1
C56 3300u
C59 100n
C60 10u
+15
+15V
+15V2
R60 1k
V22 BD708
10V5
+11
R20 100
+9V7
C8 100u
C9 100n
V23 BC548C
R52 8R2
L4 4u7
+10V2
C58 330u
V24 BZX79-B11
C57 330u
C54 47u
C51 4n7
L201 22u
R210 1
C201 2u2
V213 BD136
V214 BZX79/B9V1
R211 470
R213 820
V212 BC558C
R212 1k
U8 7805
+5V3
C53 100n
C52 10u
R38 8R2
C30 220u
C42 22n
U2 TDA3190P
C47 18p
R40 1k
L3 5M5Hz
1)4M5Hz
2)6MHz
R39 1k
C43 47n
C40 22n
AUDIO IN
4X40
C37 1u
R47 33k
R46 4k7
R129 33k
V9 BC548
V71 BC548
R49 33k
V103 BC543B
R173 75
VCR/TV
VIDEO IN
3X40
R122 56
R121 18
C45 10u
R21 10k
U3 TDA5850
C23 68p 2)56p
L1 12u 1)18u
C22 10u
R75 100
C80 220p
R151 2k2
C46 100n
B15
15V2 (ACTIVE)
4V5 (NOT ACTIVE)
A1
CAMERA 1
X24
V30 1N4148
L10 4u7
V63 BC327
V40 1N4003G
R108 680
B3
R76 15k
14V4 (ACTIVE)
15V2 (NOT ACTIVE)
CAMERA 2
X25
V31 1N4148
L11 4u7
V39 BC327
V41 1N4003G
R82 680
B4
R77 15k
CAMERA 3
X26
V32 1N4148
L12 4u7
V44 BC327
V42 1N4003G
R83 680
B5
R78 15k
CAMERA 4
X27
V33 1N4148
L13 4u7
V43 BC327
V36 1N4003G
R84 680
B6
R79 15k
CAMERA 5 4)
X29
V34 1N4148
L14 4u7
V45 BC327
V37 1N4003G
R85 680
B7
R80 15k
CAMERA 6 4)
X28
V35 1N4148
L15 4u7
V46 BC327
V38 1N4003G
R86 680
B8
R81 15k
+5V3
+15V2
2 WAY SOUND
C2
WAVE FORM REFERENCE
R72 15
C72 10n
R68 10k
L101 0u62
R71 15
C73 3n9
V29 BC548
10V2
C74 10p
R70 2k2
R69 2k2
C71 10n
R67 100
V28 1N4148
C69 3p9
C70 3p9
R66 4k7
C66 5p6
C67 6p8
C65 5p6
L103 0u26
C68 5)
C62 5)
L102 0u3
V27 1N4148
R65 4k7
R64 1k
R62 4k7
V26 1N4148
R61 4k7
R63 4k7
C63 10n
C64 5)
C61 5)
V25 1N4148
S1
CHANNEL SELECTION CH3/CH4
POSITION CH4
T104 0u26/1u3
C79 100p
U7 TDA8341/N6
L8 2u2
R73 100
C76 10n
R155 1k
C142 2u2
C78 4n7
V104 BC548
R174 33k
C75 1u
L9 4u7
4V
A16
A17
A18
R17 22k
TV
R5 22k
R1 82k
R16 100k
R12 15k
R2 4k7
C7 22n
C6 22n
C1 2u2
C12 12n
C14 2n7
U9 TDA8215A
FLY BACK DET.
INPUT STAGE
HOR OSC.
HOR OUTPUT
FLY BACK GEN.
FRAME SYNC GEN.
VERT OSC.
VERT OUTPUT
VIDEO IDENTIFIER
VIDEO
C13 220n
C4 220p
R7 470k
R3 10k
V1 BC548
V97 1N4148
C5 10u
VIDEO IDENT
B26
0V2
1V2(WITHOUT SIGNAL)
R37 680k
C28 220n
R15 100
V67 BZX79 C16
V68 1N4148
R180 68k
C153 470n
V4 1N4002G
C10 47u
V2 1N4148
V102 BZX79 C8V2
R13 3R3
C11 100n
R10 560
VERT DEFLECT. COIL
R8 100k
R9 220K
C3 150n
C15 1000u
R11 18k
R18 100
C2 680p
R14 2R7
C20 2u2
V8 BU806
27V9
-0V25
V3 1N4148
R19 33
C21 27n
C19 3u9
HORIZONTAL DEFLECTION COIL
L17 46M
R123 470
R27 33k
T1
V10 BYV95B
V12 RGP15D
C48 560p
C49 47u
R51 7)
C16 100n
C17 470u
C18 22u
27V9
28V
23V

iagram


A
Audio
Video
PCB CRT
Horizontal
Vertical
EHT
U8 7805
U2 TDA3190P
U3 TDA5850
U7 TDA8341/N6
L105 9u6
AUDIO IN
AUDIO OUT
VIDEO IN
VIDEO OUT
VOLUME CONTROL POWER SWITCH
AUDIO MUTE
AUDIO MICRO
ALARM SOUND
VCR/TV
CONTRAST
BLANK
BRIGHTNESS
HORIZONTAL DEFLECTION COIL
VERT. DEFLECT. COIL
S6 CRT
10kV
T1
TV
B+C
X=2 OR 3
VSS X440
CL46620032/014.APAR
081294

NOTE :
THIS CIRCUIT DIAGRAM CAN BE USED FOR BOTH VSS3440 & VSS2440 (ALL VERSIONS). WITH DIFFERENCE THAT VSS2440 HAS 4 CAMERA INPUTS INSTEAD OF 6. AND NO ALARM SOUND. COMPONENTS R161 & C134.

8) : FOR ALL VSS3440 VERSION AND ONLY VSS4415R

1) FOR VERSION VSS34405R ONLY
2) FOR VERSION VSS3440/01T ONLY
3) FOR VERSION VSS3440/00T (BASIC VERSION)
4) ONLY VALID FOR VSS3440 NOT FOR VSS2440

5)

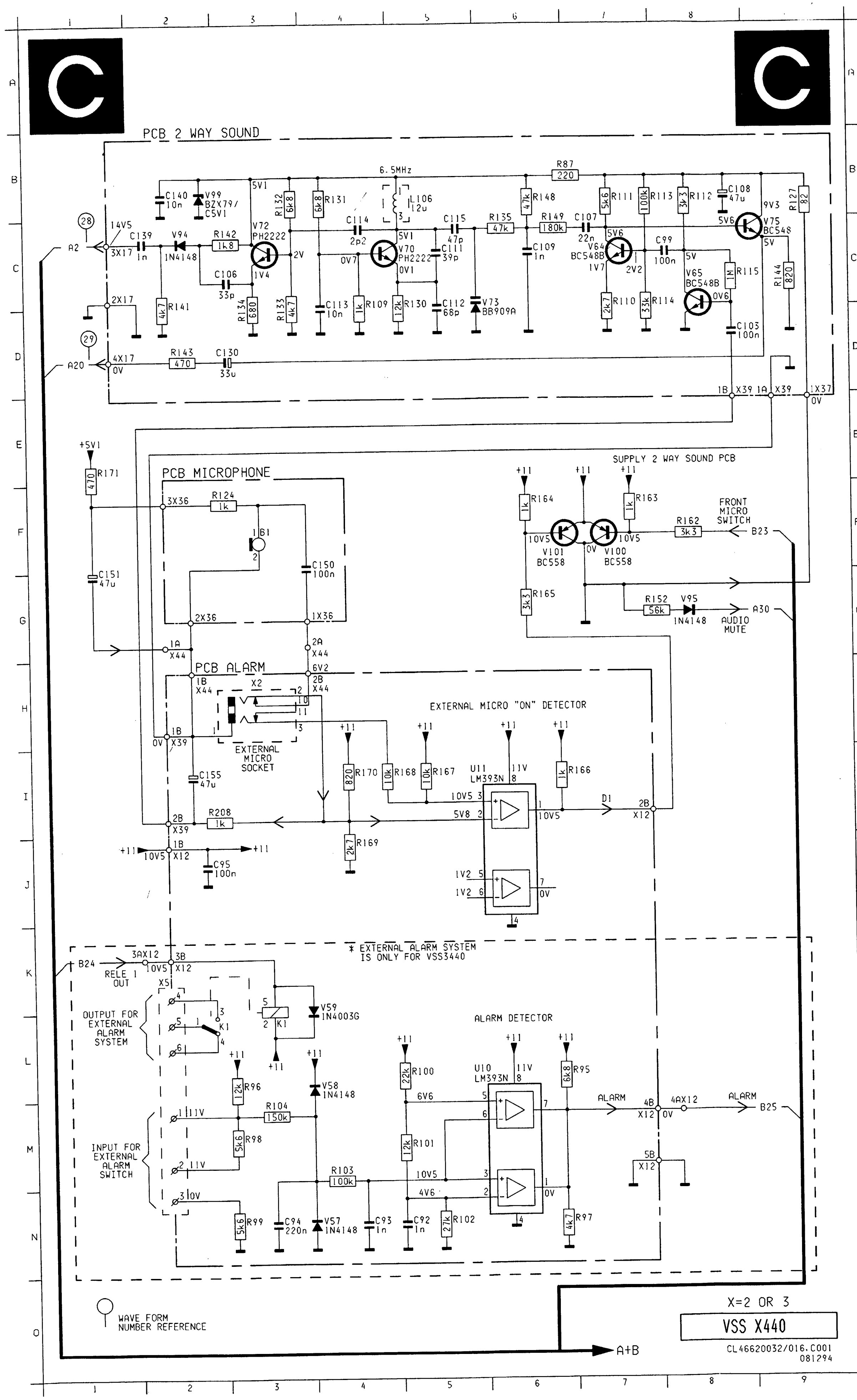
ITEM	EUROPE	USA
C61	10p	8p2
C62	8p2	6p8
C64	3p9	2p7
C68	3p9	5p6

7)

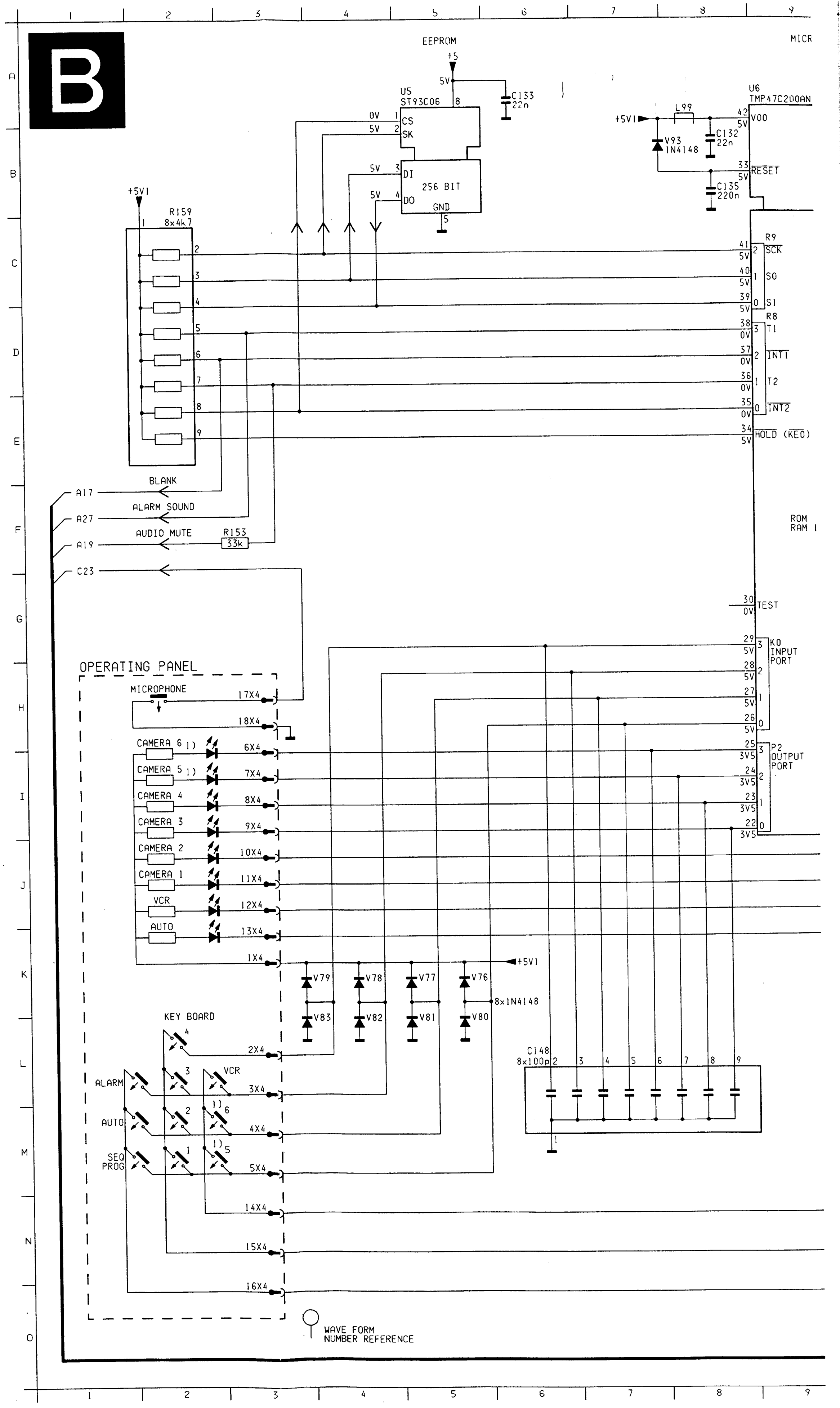
ITEM	WIHT OLD TRAFO (4822 140 10439)	WITH NEW TRAFO (4822 140 10457)
R51	47	39

C1	J 9	R117	N29	V19	B 5
C10	M13	R118	I30	V2	L14
C104	M29	R119	I32	V212	C14
C11	M15	R12	J 9	V213	B15
C110	G25	R120	M29	V214	B16
C12	J10	R121	F21	V22	B10
C13	K 6	R122	E21	V23	D10
C134	E28	R123	M20	V24	E10
C138	M27	R125	D25	V25	H12
C14	J11	R129	D21	V26	F11
C142	H13	R13	L15	V27	G 9
C15	N17	R14	N17	V28	G 8
C152	B 4	R140	H27	V29	F 7
C153	J14	R15	J13	V3	L18
C16	N20	R151	G21	V30	D 2
C17	N21	R154	D27	V31	E 2
C18	N21	R154	D27	V32	G 2
C19	L19	R155	G13	V33	H 2
C2	O13	R16	J 8	V34	J 2
C20	K17	R161	D27	V35	K 2
C201	B15	R17	I11	V36	H 3
C21	L18	R173	E23	V37	J 3
C22	G21	R174	H14	V38	K 3
C23	F20	R18	N14	V39	F 3
C24	I32	R180	J14	V4	L13
C25	I30	R19	L18	V40	D 3
C26	I31	R2	J 9	V41	F 3
C27	F30	R20	C11	V42	G 3
C28	O11	R21	F22	V43	I 3
C29	M27	R210	B14	V44	G 3
C3	N14	R211	B14	V45	J 3
C30	B22	R212	C15	V46	L 3
C31	B29	R213	B15	V5	K25
C32	C28	R22	H24	V60	G29
C33	C28	R23	E24	V61	G25
C34	C29	R24	L25	V62	G24
C35	C27	R25	G31	V63	D 3
C36	D27	R26	G31	V66	O29
C37	C21	R27	J22	V67	J13
C38	E25	R28	F30	V68	J13
C39	C25	R29	H27	V69	M29
C4	L 6	R3	M 6	V7	G30
C40	C23	R30	I30	V71	E21
C41	B24	R31	G27	V74	H27
C42	B23	R32	G26	V8	K18
C43	C22	R33	H26	V9	D22
C44	E26	R34	I33	V96	D28
C45	F22	R35	G26	V97	N 6
C46	H21	R36	G25	X23	C 2
C47	B21	R37	N10	X24	D 1
C48	N22	R38	B22	X25	F 1
C49	N21	R39	C22	X26	G 1
C5	N 7	R40	C21	X27	I 1
C50	A 4	R41	D25	X28	L 1
C51	E12	R42	C27	X29	J 1
C52	C19	R43	C28		
C53	C18	R45	B30		
C54	E11	R46	D22		
C55	B 6	R47	D21		
C56	B 7	R48	D26		
C57	E 9	R49	E22		
C58	D10	R5	J11		
C59	C 6	R50	M26		
C6	J 9	R51	N21		
C60	C 7	R52	D10		
C61	F12	R54	B 6		
C62.	G 9	R60	B 9		
C63	H11	R61	G11		
C64	F12	R62	G11		
C65	F10	R63	G11		
C66	F 9	R64	H 9		
C67	F 9	R65	G 9		
C68	F10	R66	G 9		
C69	F 8	R67	G 8		
C7	J 8	R68	E 7		
C70	F 8	R69	G 7		
C71	G 7	R7	L 7		
C72	E 6	R70	G 6		
C73	F 6	R71	F 6		
C74	G 5	R72	E 6		
C75	H15	R73	E16		
C76	E14	R75	G20		
C78	H13	R76	E 3		
C79	F13	R77	F 3		
C8	C11	R78	H 3		
C80	G20	R79	I 3		
C9	C12	R8	N14		
C96	G26	R80	K 3		
C97	H24	R81	L 3		
C98	G23	R82	F 3		
F1	B 3	R83	G 3		
L1	G20	R84	I 3		
L10	D 2	R85	J 3		
L101	E 8	R86	L 3		
L102	G10	R9	N14		
L103	E11	S1	H 8		
L105	A25	S6	G33		
L11	F 2	T1	L22		
L12	G 2	T104	F13		
L13	I 2	T3	A 2		
L14	J 2	U1	B 7		
L15	L 2	U2	B23		
L17	M19	U3	F21		
L201	B14	U7	E13		
L3	C22	U8	B18		
L4	D11	U9	J 7		
L8	E16	V1	N 6		
L9	G18	V10	M22		
R1	J10	V102	L14		
R10	L16	V103	E23		
R105	H26	V104	H13		
R106	G24	V11	M26		
R107	G23	V12	M22		
R108	D 3	V13	A 5		
R11	N14	V17	A 5		
R116	K24	V18	B 5		

Circuit diagram

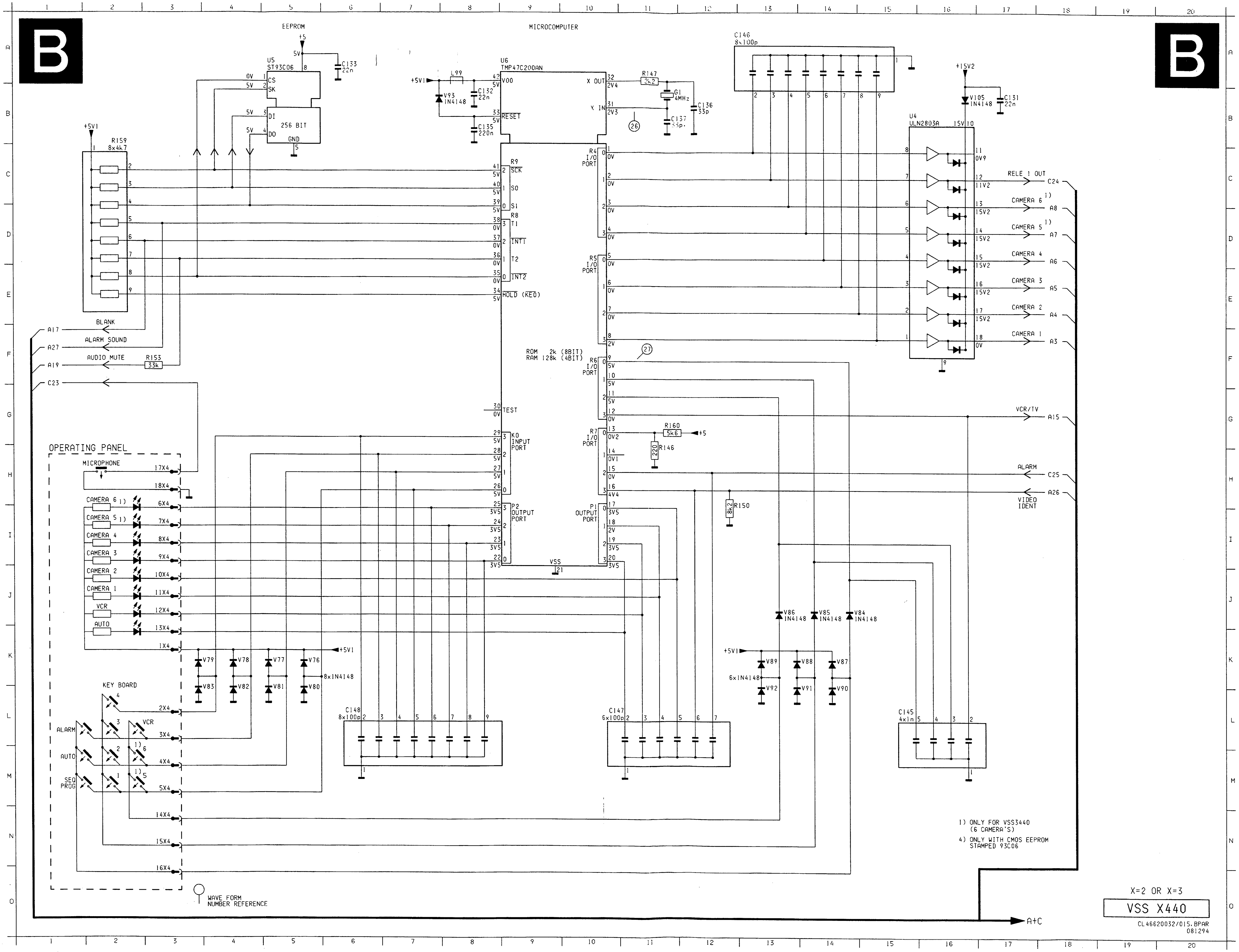

C
C
PCB 2 WAY SOUND
6.5MHz
R87 220
V99 BZX79/C5V1
C140 10n
R132 6k8
R131 6k8
L106 12u
C115 47p
R135 47k
R148 47k
R149 180k
C107 22n
C108 47u
R111 5k6
R113 100k
R112 3k3
R127 82
V72 PH2222
V70 PH2222
V64 BC548B
V65 BC548B
V75 BC548
C139 1n
V94 1N4148
R142 1k8
C106 33p
C114 2p2
C111 39p
C109 1n
C99 100n
R115 1k
R144 820
C113 10n
R109 1k
R130 12k
C112 68p
V73 BB909A
R110 2k7
R114 33k
C103 100n
R141 4k7
R134 680
R133 4k7
R143 470
C130 33u
A2
A20
3X17
2X17
4X17
14V5
1B X39 1A X39 1X37
SUPPLY 2 WAY SOUND PCB
R164 1k
R163 1k
V101 BC558
V100 BC558
R162 3k3
FRONT MICRO SWITCH
B23
R165 3k3
R152 56k
V95 1N4148
A30
AUDIO MUTE
+5V1
R171 470
C151 47u
PCB MICROPHONE
3X36
R124 1k
B1
C150 100n
2X36
1X36
1A X44
2A X44
PCB ALARM
1B X44
2B X44
X2
EXTERNAL MICRO SOCKET
C155 47u
EXTERNAL MICRO "ON" DETECTOR
R170 820
R168 10k
R167 10k
U11 LM393N
R166 1k
R169 2k7
R208 1k
2B X39
1B X12
C95 100n
2B X12
* EXTERNAL ALARM SYSTEM IS ONLY FOR VSS3440
B24
RELE 1 OUT
3AX12
3B X12
X5
OUTPUT FOR EXTERNAL ALARM SYSTEM
K1
V59 1N4003G
INPUT FOR EXTERNAL ALARM SWITCH
R96 12k
R98 5k6
R99 5k6
R104 150k
V58 1N4148
ALARM DETECTOR
R100 22k
R101 12k
R95 6k8
U10 LM393N
R103 100k
C94 220n
V57 1N4148
C93 1n
C92 1n
R102 27k
R97 4k7
4B X12
4AX12
ALARM
B25
5B X12
WAVE FORM NUMBER REFERENCE
X=2 OR 3
VSS X440
CL46620032/016.C001
081294
A+B

B1	I 5
C105	D 8
C106	C 5
C107	C 7
C108	B 8
C109	C 6
C111	C 5
C112	D 5
C113	D 4
C114	C 4
C115	C 5
C130	D 3
C139	C 2
C140	B 2
C150	F 4
C151	G 1
C155	I 2
C92	N 5
C93	N 4
C94	N 3
C95	J 2
C99	C 8
K1	L 2
K1	L 3
L106	B 5
R100	L 5
R101	M 5
R102	N 5
R103	M 4
R104	M 3
R109	D 4
R110	D 7
R111	B 7
R112	B 8
R113	B 7
R114	D 7
R115	C 8
R124	F 3
R127	B15
R130	D 5
R131	B 4
R132	B 3
R133	D 3
R134	D 3
R135	C 6
R141	D 2
R142	C 3
R143	D 2
R144	C15
R148	B 6
R149	C 6
R152	G 7
R162	F 8
R163	F 7
R164	F 6
R165	G 6
R166	I 6
R167	I 5
R168	I 4
R169	J 4
R170	I 4
R171	E 1
R208	I 2
R87	B 7
R95	L 6
R96	L 3
R97	N 6
R98	M 3
R99	N 3
U10	L 5
U11	I 5
V100	F 7
V101	F 6
V57	N 4
V58	L 4
V59	K 4
V64	C 7
V65	C 8
V70	C 5
V72	C 3
V73	D 6
V75	C15
V94	C 2
V95	G 8
V99	B 2
X5	K 2

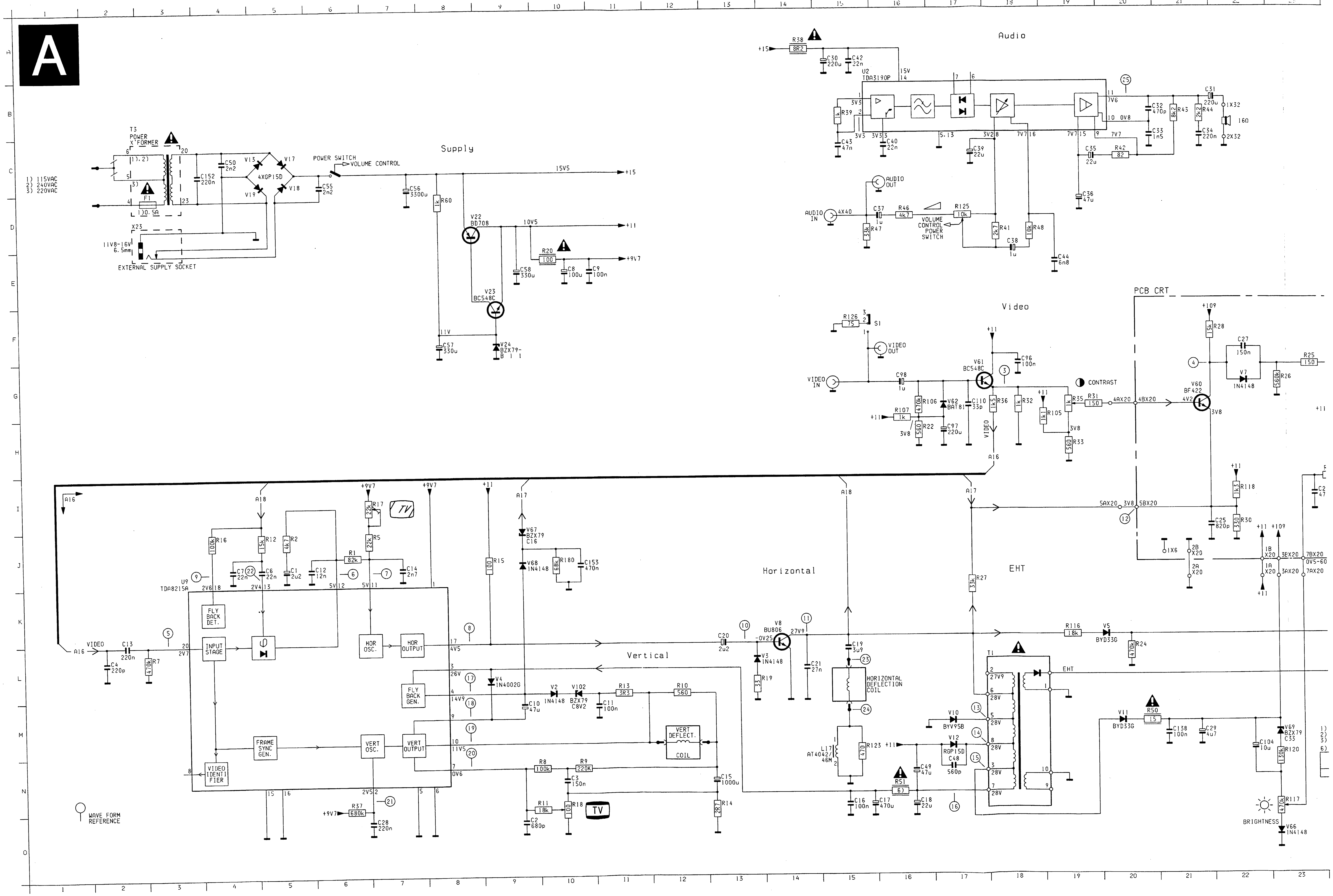

B
EEPROM
U5 ST93C06
256 BIT
CS
SK
DI
DO
GND
C133 22n
MICR
U6 TMP47C200AN
+5V1
L99
V93 1N4148
C132 22n
C135 220n
VDD
RESET
R159 8x4k7
SCK
SO
SI
T1
INT1
T2
INT2
HOLD (KEO)
R9
R8
A17
BLANK
A27
ALARM SOUND
A19
AUDIO MUTE
R153 33k
C23
ROM RAM
TEST
K0 INPUT PORT
P2 OUTPUT PORT
OPERATING PANEL
MICROPHONE
17X4
18X4
CAMERA 6
CAMERA 5
CAMERA 4
CAMERA 3
CAMERA 2
CAMERA 1
VCR
AUTO
6X4
7X4
8X4
9X4
10X4
11X4
12X4
13X4
1X4
V79
V78
V77
V76
V83
V82
V81
V80
8x1N4148
KEY BOARD
ALARM
AUTO
SEQ PROG
2X4
3X4
4X4
5X4
14X4
15X4
16X4
C148 8x100p
WAVE FORM NUMBER REFERENCE

VSSX440 6 Circuit diagram

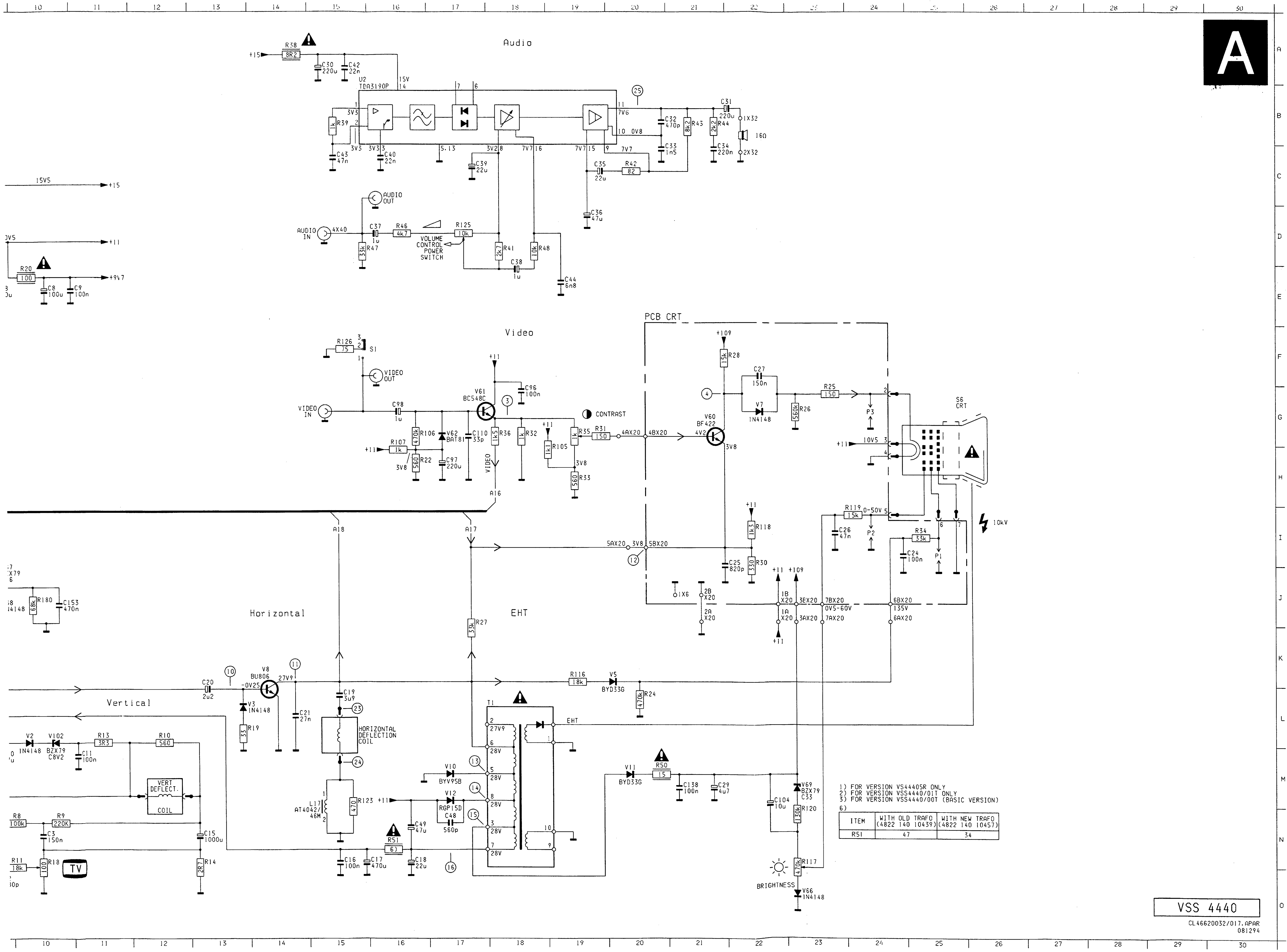
1	I 5
103	D 8
106	C 3
107	C 7
108	B 8
109	C 6
111	C 5
112	D 5
113	D 4
114	C 4
115	C 5
130	D 3
139	C 2
140	B 2
150	F 4
151	G 1
155	I 2
92	N 5
93	N 4
94	N 3
95	J 2
99	C 8
1	L 2
1	L 3
106	B 5
100	L 5
101	M 5
102	N 5
103	M 4
104	M 3
109	D 4
110	D 7
111	B 7
112	B 8
113	B 7
114	D 7
115	C 8
124	F 3
127	B15
130	D 5
131	B 4
132	B 3
133	D 3
134	D 3
135	C 6
141	D 2
142	C 3
143	D 2
144	C15
148	B 6
149	C 6
152	G 7
162	F 8
163	F 7
164	F 6
165	G 6
166	I 6
167	I 5
168	I 4
169	J 4
170	I 4
171	E 1
208	I 2
87	B 7
95	L 6
96	L 3
97	N 6
98	M 3
99	N 3
10	L 5
11	I 5
100	F 7
101	F 6
57	N 4
58	L 4
59	K 4
64	C 7
65	C 8
70	C 5
72	C 3
73	D 6
75	C15
94	C 2
95	G 8
99	B 2
5	K 2


B
B
EEPROM
MICROCOMPUTER
U5
ST93C06
256 BIT
CS
SK
DI
DO
GND
C133
22n
+5
5V
U6
TMP47C200AN
L99
+5V1
V93
1N4148
C132
22n
C135
220n
VDD
RESET
X OUT
X IN
R147
2k2
G1
4MHz
C136
33p
C137
33p
26
C146
8x100p
+15V2
V105
1N4148
C131
22n
U4
ULN2803A
R159
8x4k7
+5V1
R9
SCK
SO
SI
R8
T1
INT1
T2
INT2
HOLD (KEO)
R4 I/O PORT
R5 I/O PORT
R6 I/O PORT
R7 I/O PORT
ROM 2k (8BIT)
RAM 128k (4BIT)
27
RELE 1 OUT
C24
CAMERA 6 1)
A8
CAMERA 5 1)
A7
CAMERA 4
A6
CAMERA 3
A5
CAMERA 2
A4
CAMERA 1
A3
A17
BLANK
A27
ALARM SOUND
A19
AUDIO MUTE
R153
33k
C23
TEST
K0 INPUT PORT
P2 OUTPUT PORT
P1 OUTPUT PORT
VSS
VCR/TV
A15
R160
5k6
+5
R146
220
ALARM
C25
VIDEO IDENT
A26
R150
8k2
OPERATING PANEL
MICROPHONE
17X4
18X4
CAMERA 6 1)
6X4
CAMERA 5 1)
7X4
CAMERA 4
8X4
CAMERA 3
9X4
CAMERA 2
10X4
CAMERA 1
11X4
VCR
12X4
AUTO
13X4
1X4
+5V1
V79
V78
V77
V76
8x1N4148
V83
V82
V81
V80
KEY BOARD
2X4
ALARM
VCR
3X4
AUTO
4X4
SEQ PROG
5X4
14X4
15X4
16X4
C148
8x100p
C147
6x100p
V86
1N4148
V85
1N4148
V84
1N4148
+5V1
V89
V88
V87
6x1N4148
V92
V91
V90
C145
4x1n
1) ONLY FOR VSS3440
(6 CAMERA'S)
4) ONLY WITH CMOS EEPROM
STAMPED 93C06
WAVE FORM
NUMBER REFERENCE
X=2 OR X=3
VSS X440
CL46620032/015.BPAR
081294
A+C

C131	B17
C132	B 8
C133	A 6
C135	B 8
C136	B12
C137	B11
C145	L1
C146	A1
C147	L11
C148	L
C154	B
G1	B11
L99	A 8
R146	H11
R147	A11
R150	I12
R153	F 3
R159	B 2
R160	G11
U4	B15
U5	A 5
U6	A 9
V76	K 5
V77	K 5
V78	K 4
V79	K 3
V80	L 5
V81	L 5
V82	L 4
V83	L 3
V84	J14
V85	J14
V86	J13
V87	K14
V88	K14
V89	K13
V90	L14
V91	L14
V92	L13
V93	B 8
V105	B16


A
Supply
Audio
Video
Horizontal
Vertical
EHT
PCB CRT
1) 115VAC
2) 240VAC
3) 220VAC
T3 POWER X'FORMER
F1 1(0.5A
X23
11V8-16V 6.5mm
EXTERNAL SUPPLY SOCKET
4XGP15D
V13
V17
V19
V18
C50 2n2
C152 220n
C55 2n2
POWER SWITCH
VOLUME CONTROL
C56 3300u
R60 1k
V22 BD708
V23 BC548C
V24 BZX79-B11
C57 330u
15V5
+15
10V5
+11
R20 100
+9V7
C58 330u
C8 100u
C9 100n
11V
R38 8R2
C30 220u
C42 22n
U2 TDA3190P
R39 1k
C43 47n
C40 22n
C39 22u
C32 470p
R43 8k2
R44 2k2
C31 220u
C33 1n5
C34 220n
1X32
2X32
16Ω
C35 22u
R42 82
C36 47u
AUDIO OUT
AUDIO IN
4X40
C37 1u
R46 4k7
R125 10k
R47 33k
VOLUME CONTROL POWER SWITCH
R41 2k7
C38 1u
R48 10k
C44 6n8
R126 75
S1
VIDEO OUT
VIDEO IN
C98 1u
V61 BC548C
C96 100n
R106 470k
V62 BAT81
C110 33p
R36 1k5
R32 1k
R35 1k
R31 150
R105 1k
R107 1k
R22 560
C97 220u
R33 560
CONTRAST
4AX20
4BX20
V60 BF422
R28 15k
C27 150n
V7 1N4148
R25 150
R26 560k
+109
A16
A17
A18
R118 1k3
C25 820p
R30 330
5AX20
5BX20
1X6
2B X20
2A X20
1B X20
1A X20
3EX20
3AX20
7BX20
7AX20
0V5-60
U9 TDA8215A
R16 100k
R12 15k
R2 4k7
R17 22k
R5 22k
R1 82k
C7 22n
C6 22n
C1 2u2
C12 12n
C14 2n7
R15 100
V67 BZX79 C16
V68 1N4148
R180 68k
C153 470n
FLY BACK DET.
INPUT STAGE
HOR OSC.
HOR OUTPUT
FLY BACK GEN.
FRAME SYNC GEN.
VERT OSC.
VERT OUTPUT
VIDEO IDENTIFIER
VIDEO
C13 220n
C4 220p
R7 470k
V4 1N4002G
V2 1N4148
V102 BZX79 C8V2
R13 3R3
R10 560
C10 47u
C11 100n
VERT DEFLECT. COIL
R8 100k
R9 220K
C3 150n
C15 1000u
R11 18k
R18 100
C2 680p
R14 2R7
R37 680k
C28 220n
C20 2u2
V8 BU806
V3 1N4148
R19 33
C21 27n
C19 3u9
HORIZONTAL DEFLECTION COIL
L17 AT4042/46M
R123 470
C16 100n
C17 470u
R51 6R
C18 22u
R27 33k
R116 18k
V5 BYD33G
R24 470k
T1
V10 BYV95B
V12 RGP15D
C48 560p
C49 47u
V11 BYD33G
R50 15
C138 100n
C29 4u7
C104 10u
V69 BZX79 C33
R120 130k
R117 470k
BRIGHTNESS
V66 1N4148
WAVE FORM REFERENCE
TV

A


Audio
R38 8R2
+15
C30 220u
C42 22n
U2 TDA3190P
15V 14
R39 1k
C43 47n
3V3
3V5
C40 22n
5.13
3V2 8
7V7 16
7V7 15
C39 22u
7V6
10 0V8
C32 470p
R43 8k2
R44 2k2
C31 220u
1X32
16Ω
2X32
C33 1n5
C34 220n
C35 22u
R42 82
C36 47u
25
15V5
+15
AUDIO OUT
AUDIO IN
4X40
C37 1u
R46 4k7
R125 10k
VOLUME CONTROL POWER SWITCH
R47 33k
R41 2k7
R48 10k
C38 1u
C44 6n8
0V5
+11
R20 100
+9V7
C8 100u
C9 100n
Video
R126 75
S1
VIDEO OUT
+11
C96 100n
V61 BC548C
VIDEO IN
C98 1u
R106 470k
V62 BAT81
C110 33p
R36 1k5
R32 1k
R105 1k1
R35 1k
R31 150
4AX20
4BX20
CONTRAST
R107 1k
R22 560
C97 220u
3V8
R33 560
VIDEO
A16
A18
A17
PCB CRT
+109
R28 15k
C27 150n
V7 1N4148
R25 150
R26 560k
V60 BF422
4V2
3V8
P3
10V5
S6 CRT
R119 15k
0-50V
C26 47n
P2
R34 33k
C24 100n
P1
10kV
R118 1k3
5AX20
3V8
5BX20
C25 820p
R30 330
1X6
2B X20
2A X20
+11
+109
1B X20
1A X20
3EX20
3AX20
7BX20
0V5-60V
7AX20
6BX20
135V
6AX20
Horizontal
EHT
R27 33k
R180 68k
C153 470n
V8 BU806
C20 2u2
-0V25
27V9
V3 1N4148
R19 33
C21 27n
C19 3u9
HORIZONTAL DEFLECTION COIL
R116 18k
V5 BYD33G
R24 470k
Vertical
T1
EHT
V2 1N4148
V102 BZX79 C8V2
R13 3R3
R10 560
C11 100n
VERT DEFLECT. COIL
V10 BYV95B
V12 RGP15D
C48 560p
C49 47u
R123 470
L17 AT4042/46M
V11 BYD33G
R50 15
C138 100n
C29 4u7
V69 BZX79 C33
C104 10u
R120 130k
R8 100k
R9 220k
C3 150n
C15 1000u
R11 18k
R18 100
TV
R14 2R7
C16 100n
C17 470u
R51 6)
C18 22u
R117 470k
BRIGHTNESS
V66 1N4148

1) FOR VERSION VS44405R ONLY
2) FOR VERSION VSS4440/01T ONLY
3) FOR VERSION VSS4440/00T (BASIC VERSION)

6)

ITEM	WITH OLD TRAFO (4822 140 10439)	WITH NEW TRAFO (4822 140 10457)
R51	47	34

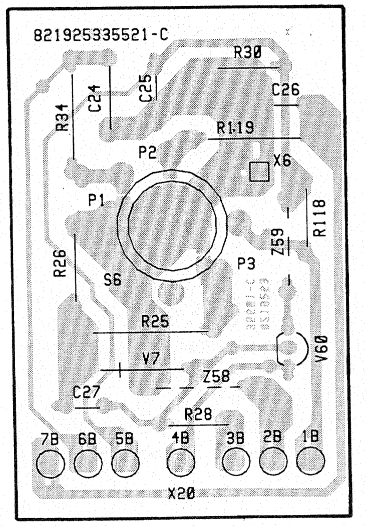
VSS 4440

CL 46620032/017.APAR
081294

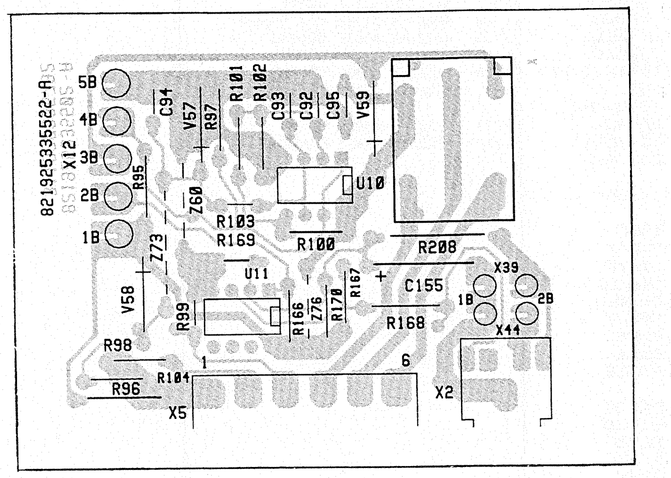
C1	J 5
C10	M 9
C104	M22
C11	M11
C110	G17
C12	J 6
C13	K 2
C138	M21
C14	J 7
C15	N13
C152	C 4
C153	J10
C16	N15
C17	N16
C18	N16
C19	L15
C2	O 9
C20	K13
C21	L14
C24	I25
C25	I22
C26	I23
C27	F22
C28	O 7
C29	M21
C3	N10
C30	A15
C31	B22
C32	B20
C33	C20
C34	C21
C35	C19
C36	D19
C37	D16
C38	E18
C39	C17
C4	L 2
C40	C16
C42	A15
C43	C15
C44	E19
C48	N17
C49	N16
C50	C 4
C55	C 6
C56	C 7
C57	F 8
C58	E 9
C6	J 5
C7	J 4
C8	E10
C9	E11
C96	G18
C97	H17
C98	G16
F1	D 3
L17	M15
R1	J 6
R10	L12
R105	H19
R106	G16
R107	G16
R11	N10
R116	K19
R117	N23
R118	I22
R119	I24
R12	J 5
R120	M23
R123	M15
R125	D17
R126	F15
R13	L11
R14	N13
R15	J 9
R16	J 4
R17	I 7
R18	N10
R180	J10
R19	L13
R2	J 5
R20	E10
R22	H16
R24	L20
R25	G23
R26	G23
R27	J17
R28	F22
R30	I22
R31	G19
R32	G18
R33	H19
R34	I25
R35	G19
R36	G18
R37	N 6
R38	A14
R39	B15
R41	D18
R42	C20
R43	B21
R46	D16
R47	D15
R48	D18
R5	J 7
R50	M20
R51	N16
R60	D 8
R7	L 3
R8	N10
R9	N10
S1	F16
S6	G25
T1	L17
T3	B 2
U2	A15
U9	J 5
V10	M17
V102	L10
V11	M20
V12	M17
V13	C 5
V17	C 5
V18	C 5
V19	C 5
V2	L10
V22	D 8
V23	E 9
V24	F 9
V3	L13
V4	L 9
V5	K20
V60	G21
V61	G17
V62	G17
V66	O23
V67	J 9
V68	J 9
V69	M23
V7	G22
V8	K14
X23	D 2

Print layout

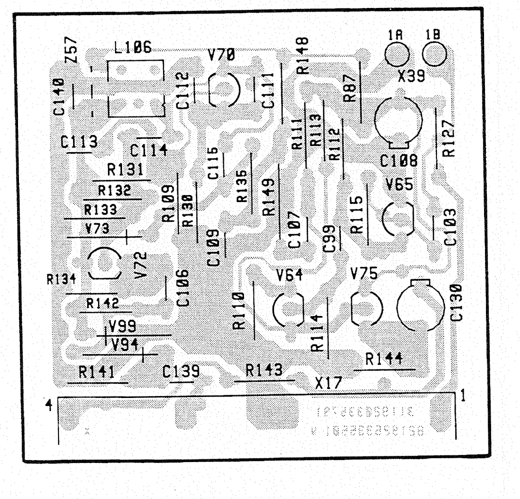
CRT PANEL



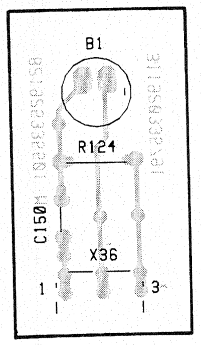
ALARM PANEL



2 WAY SOUND PANEL



MICROPHONE PANEL



Spare parts lists

Various

B001	4822 242 30257	MICROPHONE
G301	4822 242 72579	RESONATOR 4MHZ
K401	4822 281 50169	12V RELAY
S501	4822 276 13387	CH3/CH4 SWITCH
S006	5322 255 70224	CRT SOCKET
X001	4822 265 30378	SOCKET 4 PINS
X002	4822 267 31487	STEREO PHONE JACK
X004	4822 265 41231	18P CONNECTOR
X005	4822 267 41058	SOCKET 6 PINS
X023	4822 265 20259	DC SOCKET EXT.SUPPL.
X024	4822 265 10035	SOCKET FEMALE COAX.
X025	4822 265 10035	SOCKET FEMALE COAX.
X026	4822 265 10035	SOCKET FEMALE COAX.
X027	4822 265 10035	SOCKET FEMALE COAX.
X028	4822 265 10035	SOCKET FEMALE COAX.
X029	4822 265 10035	SOCKET FEMALE COAX.
X036	5322 264 54017	SOCKET MALE 3 PINS
X040	4822 267 20284	RCA JACK

C001	4822 124 40244	2.2µF 63V
C002	5322 122 32052	680pF 10% 100V
C003	5322 121 42925	150nF 10% 100V
C004	5322 122 32334	220pF 100V
C005	4822 124 40248	10µF 50V
C006	4822 121 41922	22nF 10% 250V
C007	4822 121 41922	22nF 10% 250V
C008	4822 124 40207	100µF 25V
C009	4822 126 12158	100nF 100V
C010	4822 124 40433	47µF 25V
C011	4822 121 41672	100nF 10% 100V
C012	4822 121 42766	12nF 10% 400V
C013	4822 121 41673	220nF 10% 100V
C014	4822 121 42937	2.7nF 2% 250V
C015	4822 124 40184	1000µF 10V
C016	4822 121 41672	100nF 10% 100V
C017	4822 124 40646	470µF 40V
C018	4822 124 40804	22µF 40V
C019	4822 121 41893	3.9µF 10% 100V
C020	4822 124 40244	2.2µF 63V
C021	4822 121 43915	27nF 5% 630V
C022	4822 124 40248	10µF 63V
C023	4822 122 31349	68pF 100V
C023	4822 122 32027	56pF 100V
C024	4822 121 41689	100nF 10% 250V
C025	5322 122 32799	390pF 10% 100V
C026	4822 121 41984	47nF 10% 100V
C027	5322 121 42925	150nF 10% 100V
C028	4822 121 41673	220nF 100V
C029	4822 124 80143	4.7µF 200V
C030	4822 124 41393	220µF 25V
C031	4822 124 41393	220µF 25V
C032	5322 122 32311	470pF 10% 100V
C033	5322 122 32332	1.5nF 10% 100V
C034	4822 121 41673	220nF 10% 100V
C035	4822 124 40804	22µF 63V
C036	4822 124 40433	47µF 25V
C037	4822 124 40242	1µF 63V
C038	4822 124 40242	1µF 63V
C039	4822 124 40804	22µF 63V
C040	4822 122 30103	22nF -20+80 63V
C041	4822 122 31052	8.2pF 100V
C042	4822 122 30103	22nF -20+80 63V
C043	4822 126 12159	47nF 100V
C044	4822 122 31429	6.8nF -20+80 100V
C045	4822 124 40248	10µF 63V
C046	4822 126 12158	100nF 100V
C047	4822 122 31061	18pF 100V
C048	4822 122 40112	560pF 10% 500V
C049	4822 124 40433	47µF 25V
C050	5322 122 32818	2.2nF 10% 100V
C051	5322 122 32261	4.7nF 10% 100V
C052	4822 124 20697	10µF 25V
C053	4822 124 41525	100µF 25V
C054	4822 124 40433	47µF 25V
C055	5322 122 32818	2.2nF 10% 100V
C056	4822 124 40785	3300µF 25V
C057	4822 124 40849	330µF 25V
C058	4822 124 40849	330µF 25V
C059	4822 126 12158	100nF 100V
C060	4822 124 40242	1µF 63V
C061	4822 122 31052	8.2pF 100V
C061	4822 122 32185	10pF 100V
C062	4822 122 31052	8.2pF 100V
C062	4822 122 31049	6.8pF 100V
C063	4822 122 31414	10nF -20+80 100V
C064	4822 122 31038	2.7pF 100V
C064	5322 122 34107	3.9pF 100V
C065	5322 122 32163	5.6pF 100V
C066	5322 122 32163	5.6pF 100V
C067	4822 122 31049	6.8pF 100V
C068	4822 122 31049	6.8pF 100V
C068	5322 122 32163	5.6pF 100V
C069	5322 122 34107	3.9pF 100V
C070	5322 122 34107	3.9pF 100V
C071	4822 122 31414	10nF -20+80 100V
C072	4822 122 31414	10nF -20+80 100V
C073	5322 122 32779	3.9nF 10% 100V
C074	4822 122 32185	10pF 100V
C075	4822 124 40242	1µF 63V
C076	4822 122 31414	10nF -20+80 100V
C078	5322 122 32261	4.7nF 10% 100V
C079	4822 122 31316	100pF 100V
C080	5322 122 32334	220pF 10% 100V
C092	5322 122 32331	1nF 10% 100V
C093	5322 122 32331	1nF 10% 100V
C094	4822 121 41673	220nF 10% 100V
C095	4822 126 12158	100nF 100V
C096	4822 126 12158	100nF 100V
C097	4822 124 40181	220µF 10V
C098	4822 124 40242	1µF 63V
C099	4822 126 12158	100nF 100V
C103	4822 126 12158	100nF 100V
C104	4822 124 41833	10µF 20% 160V
C106	5322 122 32072	33pF 100V
C107	4822 122 30103	22nF -20+80 63V
C108	4822 124 40433	47µF 25V
C109	5322 122 32331	1nF 10% 100V
C110	5322 122 32072	33pF 100V
C111	4822 122 31069	39pF 100V
C112	4822 122 31349	68pF 100V
C113	4822 122 31414	10nF -20+80 100V
C114	4822 122 31036	2.2pF 100V
C115	4822 122 31072	47pF 100V
C130	4822 124 40272	33µF 16V
C131	4822 122 30103	22nF -20+80 63V
C132	4822 122 30103	22nF -20+80 63V
C133	4822 122 30103	22nF -20+80 63V
C134	5322 122 32335	330pF 10% 100V
C135	4822 121 42408	220nF 10% 63V
C136	5322 122 32072	33pF 100V
C137	5322 122 32072	33pF 100V
C138	4822 121 41689	100nF 10% 250V
C139	4822 122 33399	1nF -20+80 63V
C140	4822 122 31414	10nF -20+80 100V
C142	4822 124 40244	2.2µF 63V
C143	4822 124 40433	47µF 25V
C145	4822 122 90109	NETWORK 4X1nF
C146	4822 122 90108	NETWORK 8X100pF
C147	4822 122 90106	NETWORK 6X100pF
C148	4822 122 90108	NETWORK 8X100pF
C149	5322 122 32818	2.2nF 10% 100V
C150	4822 126 12158	100nF 100V
C151	4822 124 20678	47µF 10V
C152	5322 121 42025	220nF 10% 250V
C153	4822 121 51252	470nF 63V
C155	4822 124 20678	47µF 10V
C201	4822 124 40244	2.2µF 20% 63V

L001	4822 157 51511	INDUCTANCE 12 µH
L001	4822 157 51612	INDUCTANCE 18 µH
L003	4822 242 70279	FILTER UK
L003	4822 242 71725	FILTER USA
L003	4822 242 72547	FILTER EUR
L004	4822 157 53139	COIL 4.7 µH
L008	4822 157 50963	MICROCHOKE 2.2 µH
L009	4822 157 53139	COIL 4.7 µH
L010	4822 157 53139	COIL 4.7 µH
L011	4822 157 53139	COIL 4.7 µH
L012	4822 157 53139	COIL 4.7µH
L013	4822 157 53139	COIL 4.7µH
L014	4822 157 53139	COIL 4.7µH
L015	4822 157 53139	COIL 4.7µH
L017	4822 157 71071	LINEARITY COIL
L099	4822 526 10574	FERRITE BEAD
L101	4822 156 21355	COIL 0.62 µH
L102	4822 156 21356	COIL 0.30 µH
L103	4822 156 21357	COIL 0.26 µH
L105	4822 156 21233	COIL 9.6 µH (UK)
L105	4822 157 51751	COIL 9.6 µH (EUR)
L105	4822 156 21164	COIL 15 µH (USA)
L106	4822 156 21667	COIL
L201	4822 157 63936	COIL 22 µH

R001	4822 116 52304	82k 5% 0.5W
R002	4822 116 52283	4.7k 5% 0.5W
R003	4822 116 52233	10k 5% 0.5W
R005	4822 116 52257	22k 5% 0.5W
R007	4822 050 14704	470k 5% 0.5W
R008	4822 116 52234	100k 5% 0.5W
R009	4822 116 83874	220k 5% 0.5W
R010	4822 116 52226	560Ω 5% 0.5W
R011	4822 116 52251	18k 5% 0.5W
R012	4822 116 52244	15k 5% 0.5W
R013	5322 116 53564	3Ω3 5% 0.5W
R014	4822 116 81844	2Ω7 5% 0.5W
R015	4822 053 11101	100Ω 5% 1.6W
R016	4822 116 52234	100k 5% 0.5W
R017	4822 100 11873	22k POTMETER
R018	4822 100 10073	100Ω POTMETER
R019	4822 116 52191	33Ω 5% 0.5W
R020▲	4822 052 10101	100Ω 5% 0.33W
R021	4822 116 52233	10k 5% 0.5W
R022	4822 116 52226	560Ω 5% 0.5W
R023	4822 050 11002	1k 5% 0.5W
R024	4822 050 14704	470k 5% 0.5W
R025	4822 116 83703	150Ω 10%
R026	4822 116 52292	560k 5% 0.5W
R027	4822 116 52271	33k 5% 0.5W
R028	4822 116 52233	10k 5% 0.5W
R029	4822 116 52206	120Ω 5% 0.5W
R030	4822 116 52222	390Ω 5% 0.5W
R031	4822 116 52211	150Ω 5% 0.5W
R032	4822 050 11002	1k0 5% 0.5W
R033	4822 116 52226	560Ω 5% 0.5W
R034	4822 116 52271	33k 5% 0.5W
R035	4822 100 20858	1k POTMETER
R036	4822 116 52243	1.5k 5% 0.5W
R037	4822 116 52298	680k 5% 0,5W
R038▲	4822 052 10828	8.2Ω 5% 0.33W
R039	4822 050 11002	1k 5% 0.5W
R040	4822 050 11002	1k 5% 0.5W
R041	4822 116 52263	2.7k 5% 0.5W
R042	4822 050 28209	82Ω 5% 0.5W
R043	4822 116 52303	8.2k 5% 0.5W
R044	4822 116 81154	2.2Ω 5% 0.5W
R045	4822 116 52231	820Ω 5% 0.5W
R046	4822 116 52283	4.7k 5% 0.5W
R047	4822 116 52271	33k 5% 0.5W
R048	4822 116 52233	10k 5% 0.5W
R049	4822 116 52271	33k 5% 0.5W
R050▲	4822 052 10159	15Ω 5% NFR25
R051▲	4822 052 10399	39Ω 5% 1/8W
R052▲	4822 052 10828	8.2Ω 5% 0.33W
R054	4822 050 12709	27Ω 5% 0.5W
R060	4822 050 11002	1k 5% 0.5W
R061	4822 116 52283	4.7k 5% 0.5W
R062	4822 116 52283	4.7k 5% 0.5W
R063	4822 116 52283	4.7k 5% 0.5W
R064	4822 050 11002	1k 5% 0.5W
R065	4822 116 52283	4.7k 5% 0.5W
R066	4822 116 52283	4.7k 5% 0.5W
R067	4822 116 52175	100Ω 5% 0.5W
R068	4822 116 52233	10k 5% 0.5W
R069	4822 116 52256	2.2k 5% 0.5W
R070	4822 116 52256	2.2k 5% 0.5W
R071	4822 116 52182	15Ω 5% 0.5W
R072▲	4822 052 10159	15Ω 5% NFR25
R073	4822 116 52175	100Ω 5% 0.5W
R075	4822 116 52175	100Ω 5% 0.5W
R076	4822 116 52244	15k 5% 0.5W
R077	4822 116 52244	15k 5% 0.5W
R078	4822 116 52244	15k 5% 0.5W
R079	4822 116 52244	15k 5% 0.5W
R080	4822 116 52244	15k 5% 0.5W
R081	4822 116 52244	15k 5% 0.5W
R082	4822 116 52228	680Ω 5% 0.5W
R083	4822 116 52228	680Ω 5% 0.5W
R084	4822 116 52228	680Ω 5% 0.5W
R085	4822 116 52228	680Ω 5% 0.5W
R086	4822 116 52228	680Ω 5% 0.5W
R087	4822 116 52215	220Ω 5% 0.5W
R095	4822 116 52296	6.8k 5% 0.5W
R096	4822 050 21203	12k 5% 0.5W
R097	4822 116 52283	4.7k 5% 0.5W
R098	4822 116 52289	5.6k 5% 0.5W
R099	4822 050 25602	5.6k 5% 0.4W
R100	4822 116 52257	22k 5% 0.5W
R101	4822 050 21203	12k 5% 0.5W
R102	4822 116 52264	27k 5% 0.5W
R103	4822 050 21004	100k 5% 0.4W
R104	4822 050 11504	150k 5% 0.5W
R105	4822 116 52205	1.1k 5% 0.5W
R106	4822 050 14704	470k 5% 0.5W
R107	4822 116 52231	820Ω 5% 0,5W
R108	4822 116 52228	680Ω 5% 0.5W
R109	4822 050 11002	1k 5% 0.5W
R110	4822 116 52263	2.7k 5% 0.5W
R111	4822 116 52289	5.6k 5% 0.5W
R112	4822 116 52269	3.3k 5% 0.5W
R113	4822 116 52234	100k 5% 0.5W
R114	4822 116 52271	33k 5% 0.5W
R115	4822 116 52235	1M 5% 0.5W
R116	4822 116 52251	18k 5% 0.5W
R117	4822 100 20859	470k POTMETER
R118	4822 050 11302	1.3k SFR16
R119	4822 116 52244	15k 5% 0.5W
R120	4822 050 11304	130k 5% 0.5W
R121	4822 116 52184	18Ω 5% 0.5W
R122	4822 116 52197	56Ω 5% 0.5W
R123	4822 116 52224	470Ω 5% 0.5W
R124	4822 050 11002	1k 5% 0.5W
R125	4822 101 40162	10k POTM. + SWITCH
R126	4822 116 52215	220Ω 5% 0.5W
R127	4822 050 28209	82Ω 5% 0.5W
R129	4822 116 52271	33k 5% 0.5W
R130	4822 050 21203	12k 5% 0.5W
R131	4822 116 52296	6.8k 5% 0.5W
R132	4822 116 52296	6.8k 5% 0.5W
R133	4822 116 52283	4.7k 5% 0.5W
R134	4822 116 52228	680Ω 5% 0.5W
R135	4822 116 52284	47k 5% 0.5W
R140	4822 116 52244	15k 5% 0.5W
R141	4822 116 52283	4.7k 5% 0.5W
R142	4822 116 52249	1.8k 5% 0.5W
R143	4822 116 52224	470Ω 5% 0.5W
R144	4822 116 52231	820Ω 5% 0.5W
R146	4822 116 52215	220Ω 5% 0.5W
R147	4822 116 52256	2.2k 5% 0.5W
R148	4822 116 52284	47k 5% 0.5W
R149	4822 116 52252	180k 5% 0.5W
R150	4822 116 52303	8.2k 5% 0.5W
R151	4822 116 52256	2.2k 5% 0.5W
R152	4822 116 52291	56k 5% 0.5W
R153	4822 116 52271	33k 5% 0.5W
R154	4822 050 11002	1k 5% 0.5W
R155	4822 050 11002	1k 5% 0.4W
R159	5322 116 90624	NETWORK RESISTORS
R160	4822 116 52289	5.6k 5% 0.5W
R161	4822 050 14704	470k 5% 0.5W
R162	4822 116 52269	3.3k 5% 0.5W
R163	4822 050 11002	1k 5% 0.5W
R164	4822 050 11002	1k 5% 0.5W
R165	4822 116 52269	3.3k 5% 0.5W
R166	4822 050 11002	1k 5% 0.5W
R167	4822 050 11003	10k 1% 0,4W
R168	4822 050 11003	10k 1% 0,4W
R169	4822 050 12702	2.7k 1% 0,4W
R170	4822 050 18201	820Ω 1% 0,4W
R171	4822 116 52224	470Ω 5% 0.5W
R172	4822 111 50603	1.5M 10% 0.5W
R173	4822 116 52201	75Ω 5% 0.5W
R174	4822 116 52271	33k 5% 0.5W
R180	4822 116 52297	68k 5% 0.5W
R181	4822 116 52233	10k 5% 0.5W
R208	4822 050 11002	1k 1% 0,4W
R210	4822 116 81039	1.8Ω 5% 0.5W
R210	4822 116 80176	1Ω 5% 0.5W
R211	4822 116 52224	470Ω 5% 0.5W
R212	4822 050 11002	1k 1% 0,4W
R213	4822 116 52231	820Ω 5% 0.5W

T001▲	4822 140 10457	EHT TRANSFORMER
T003▲	4822 146 21666	MAINS TRAFO 220/240V
T003▲	4822 146 21665	MAINS TRAFO 110V
T104	4822 156 21358	COIL 0.20 µH

U001	4822 209 80817	L7805
U002	4822 209 81194	TDA3
U003	4822 209 83119	TDA5
U004	5322 209 86372	ULN2
U005	4822 209 31168	ST93
U006	4822 209 32972	TMP4 PH02
U007	4822 209 72746	TDA8
U008	4822 209 80817	L7805
U009	4822 209 31254	TDA8
U010	4822 209 80797	LM39
U011	4822 209 80797	LM39
V001	4822 130 40938	BC54
V002	4822 130 30621	1N41
V003	4822 130 30621	1N41
V004	5322 130 30684	1N40
V005	4822 130 42489	BYD3
V007	4822 130 30621	1N41
V008	5322 130 60135	BU80
V009	4822 130 40938	BC54
V010	4822 130 41486	BYV9
V011	4822 130 42489	BYD3
V012	5322 130 31971	RGP1
V013	4822 130 31173	GP15
V017	4822 130 31173	GP15
V018	4822 130 31173	GP15
V019	4822 130 31173	GP15
V022	4822 130 63711	BD70
V023	4822 130 44196	BC54
V024	4822 130 34488	BZX7
V025	4822 130 30621	1N41
V026	4822 130 30621	1N41
V027	4822 130 30621	1N41
V028	4822 130 30621	1N41
V029	4822 130 40938	BC54
V030	4822 130 30621	1N41
V031	4822 130 30621	1N41
V032	4822 130 30621	1N41
V033	4822 130 30621	1N41
V034	4822 130 30621	1N41
V035	4822 130 30621	1N41
V036	4822 130 31878	1N40
V037	4822 130 31878	1N40
V038	4822 130 31878	1N40
V039	4822 130 41327	BC32
V040	4822 130 31878	1N40
V041	4822 130 31878	1N40
V042	4822 130 31878	1N40
V043	4822 130 41327	BC32
V044	4822 130 41327	BC32
V045	4822 130 41327	BC32
V046	4822 130 41327	BC32
V057	4822 130 30621	1N41
V058	4822 130 30621	1N41
V059	4822 130 31878	1N40
V060	4822 130 41782	BF42
V061	4822 130 44196	BC54
V062	5322 130 80617	BAT8
V063	4822 130 41327	BC32
V064	4822 130 40937	BC54
V065	4822 130 40937	BC54
V066	4822 130 30621	1N41
V067	4822 130 34268	BZX7
V068	4822 130 30621	1N41
V069	4822 130 34142	BZX7
V070	5322 130 42713	PH22
V071	4822 130 40938	BC54
V072	5322 130 42713	PH22
V073	5322 130 32162	BB90
V074	4822 130 40938	BC54
V075	4822 130 40938	BC54
V076	4822 130 30621	1N41
V077	4822 130 30621	1N41
V078	4822 130 30621	1N41
V079	4822 130 30621	1N41
V080	4822 130 30621	1N41
V081	4822 130 30621	1N41
V082	4822 130 30621	1N41
V083	4822 130 30621	1N41
V084	4822 130 30621	1N41
V085	4822 130 30621	1N41
V086	4822 130 30621	1N41
V087	4822 130 30621	1N41
V088	4822 130 30621	1N41
V089	4822 130 30621	1N41
V090	4822 130 30621	1N41
V091	4822 130 30621	1N41
V092	4822 130 30621	1N41
V093	4822 130 30621	1N41
V094	4822 130 30621	1N41
V095	4822 130 30621	1N41

Spare part

Various

B001	4822 242 30257	MICROPHONE
G301	4822 242 72579	RESONATOR 4MHZ
K401	4822 281 50169	12V RELAY
S501	4822 276 13387	CH3/CH4 SWITCH
S006	5322 255 70224	CRT SOCKET
X001	4822 265 30378	SOCKET 4 PINS
X002	4822 267 31487	STEREO PHONE JACK
X004	4822 265 41231	18P CONNECTOR
X005	4822 267 41058	SOCKET 6 PINS
X023	4822 265 20259	DC SOCKET EXT.SUPPL.
X024	4822 265 10035	SOCKET FEMALE COAX.
X025	4822 265 10035	SOCKET FEMALE COAX.
X026	4822 265 10035	SOCKET FEMALE COAX.
X027	4822 265 10035	SOCKET FEMALE COAX.
X028	4822 265 10035	SOCKET FEMALE COAX.
X029	4822 265 10035	SOCKET FEMALE COAX.
X036	5322 264 54017	SOCKET MALE 3 PINS
X040	4822 267 20284	RCA JACK

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C001	4822 124 40244	2.2µF 63V
C002	5322 122 32052	680pF 10% 100V
C003	5322 121 42925	150nF 10% 100V
C004	5322 122 32334	220pF 100V
C005	4822 124 40248	10µF 50V
C006	4822 121 41922	22nF 10% 250V
C007	4822 121 41922	22nF 10% 250V
C008	4822 124 40207	100µF 25V
C009	4822 126 12158	100nF 100V
C010	4822 124 40433	47µF 25V
C011	4822 121 41672	100nF 10% 100V
C012	4822 121 42766	12nF 10% 400V
C013	4822 121 41673	220nF 10% 100V
C014	4822 121 42937	2.7nF 2% 250V
C015	4822 124 40184	1000µF 10V
C016	4822 121 41672	100nF 10% 100V
C017	4822 124 40646	470µF 40V
C018	4822 124 40804	22µF 40V
C019	4822 121 41893	3.9µF 10% 100V
C020	4822 124 40244	2.2µF 63V
C021	4822 121 43915	27nF 5% 630V
C022	4822 124 40248	10µF 63V
C023	4822 122 31349	68pF 100V
C023	4822 122 32027	56pF 100V
C024	4822 121 41689	100nF 10% 250V
C025	5322 122 32799	390pF 10% 100V
C026	4822 121 41984	47nF 10% 100V
C027	5322 121 42925	150nF 10% 100V
C028	4822 121 41673	220nF 100V
C029	4822 124 80143	4.7µF 200V
C030	4822 124 41393	220µF 25V
C031	4822 124 41393	220µF 25V
C032	5322 122 32311	470pF 10% 100V
C033	5322 122 32332	1.5nF 10% 100V
C034	4822 121 41673	220nF 10% 100V
C035	4822 124 40804	22µF 63V
C036	4822 124 40433	47µF 25V
C037	4822 124 40242	1µF 63V
C038	4822 124 40242	1µF 63V
C039	4822 124 40804	22µF 63V
C040	4822 122 30103	22nF -20+80 63V
C041	4822 122 31052	8.2pF 100V
C042	4822 122 30103	22nF -20+80 63V
C043	4822 126 12159	47nF 100V
C044	4822 122 31429	6.8nF -20+80 100V
C045	4822 124 40248	10µF 63V
C046	4822 126 12158	100nF 100V
C047	4822 122 31061	18pF 100V
C048	4822 122 40112	560pF 10% 500V
C049	4822 124 40433	47µF 25V
C050	5322 122 32818	2.2nF 10% 100V
C051	5322 122 32261	4.7nF 10% 100V
C052	4822 124 20697	10µF 25V
C053	4822 124 41525	100µF 25V
C054	4822 124 40433	47µF 25V
C055	5322 122 32818	2.2nF 10% 100V
C056	4822 124 40785	3300µF 25V
C057	4822 124 40849	330µF 25V
C058	4822 124 40849	330µF 25V
C059	4822 126 12158	100nF 100V
C060	4822 124 40242	1µF 63V
C061	4822 122 31052	8.2pF 100V
C061	4822 122 32185	10pF 100V
C062	4822 122 31052	8.2pF 100V
C062	4822 122 31049	6.8pF 100V
C063	4822 122 31414	10nF -20+80 100V
C064	4822 122 31038	2.7pF 100V
C064	5322 122 34107	3.9pF 100V
C065	5322 122 32163	5.6pF 100V
C066	5322 122 32163	5.6pF 100V
C067	4822 122 31049	6.8pF 100V
C068	4822 122 31049	6.8pF 100V
C068	5322 122 32163	5.6pF 100V
C069	5322 122 34107	3.9pF 100V
C070	5322 122 34107	3.9pF 100V
C071	4822 122 31414	10nF -20+80 100V
C072	4822 122 31414	10nF -20+80 100V
C073	5322 122 32779	3.9nF 10% 100V
C074	4822 122 32185	10pF 100V
C075	4822 124 40242	1µF 63V
C076	4822 122 31414	10nF -20+80 100V
C078	5322 122 32261	4.7nF 10% 100V
C079	4822 122 31316	100pF 100V
C080	5322 122 32334	220pF 10% 100V
C092	5322 122 32331	1nF 10% 100V
C093	5322 122 32331	1nF 10% 100V
C094	4822 121 41673	220nF 10% 100V
C095	4822 126 12158	100nF 100V
C096	4822 126 12158	100nF 100V
C097	4822 124 40181	220µF 10V
C098	4822 124 40242	1µF 63V
C099	4822 126 12158	100nF 100V
C103	4822 126 12158	100nF 100V
C104	4822 124 41833	10µF 20% 160V
C106	5322 122 32072	33pF 100V
C107	4822 122 30103	22nF -20+80 63V
C108	4822 124 40433	47µF 25V
C109	5322 122 32331	1nF 10% 100V
C110	5322 122 32072	33pF 100V
C111	4822 122 31069	39pF 100V
C112	4822 122 31349	68pF 100V
C113	4822 122 31414	10nF -20+80 100V
C114	4822 122 31036	2.2pF 100V
C115	4822 122 31072	47pF 100V
C130	4822 124 40272	33µF 16V
C131	4822 122 30103	22nF -20+80 63V
C132	4822 122 30103	22nF -20+80 63V
C133	4822 122 30103	22nF -20+80 63V
C134	5322 122 32335	330pF 10% 100V
C135	4822 121 42408	220nF 10% 63V
C136	5322 122 32072	33pF 100V
C137	5322 122 32072	33pF 100V
C138	4822 121 41689	100nF 10% 250V
C139	4822 122 33399	1nF -20+80 63V
C140	4822 122 31414	10nF -20+80 100V
C142	4822 124 40244	2.2µF 63V
C143	4822 124 40433	47µF 25V
C145	4822 122 90109	NETWORK 4X1nF
C146	4822 122 90108	NETWORK 8X100pF
C147	4822 122 90106	NETWORK 6X100pF
C148	4822 122 90108	NETWORK 8X100pF
C149	5322 122 32818	2.2nF 10% 100V
C150	4822 126 12158	100nF 100V
C151	4822 124 20678	47µF 10V
C152	5322 121 42025	220nF 10% 250V
C153	4822 121 51252	470nF 63V
C155	4822 124 20678	47µF 10V
C201	4822 124 40244	2.2µF 20% 63V

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L001	4822 157 51511	INDUCTANCE 12 µH
L001	4822 157 51612	INDUCTANCE 18 µH
L003	4822 242 70279	FILTER UK
L003	4822 242 71725	FILTER USA
L003	4822 242 72547	FILTER EUR
L004	4822 157 53139	COIL 4.7 µH
L008	4822 157 50963	MICROCHOKE 2.2 µH
L009	4822 157 53139	COIL 4.7 µH
L010	4822 157 53139	COIL 4.7 µH
L011	4822 157 53139	COIL 4.7 µH
L012	4822 157 53139	COIL 4.7µH
L013	4822 157 53139	COIL 4.7µH
L014	4822 157 53139	COIL 4.7µH
L015	4822 157 53139	COIL 4.7µH
L017	4822 157 71071	LINEARITY COIL
L099	4822 526 10574	FERRITE BEAD
L101	4822 156 21355	COIL 0.62 µH
L102	4822 156 21356	COIL 0.30 µH
L103	4822 156 21357	COIL 0.26 µH
L105	4822 156 21233	COIL 9.6 µH (UK)
L105	4822 157 51751	COIL 9.6 µH (EUR)
L105	4822 156 21164	COIL 15 µH (USA)
L106	4822 156 21667	COIL
L201	4822 157 63936	COIL 22 µH

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R001	4822 116 52304	82k 5% 0.5W
R002	4822 116 52283	4.7k 5% 0.5W
R003	4822 116 52233	10k 5% 0.5W
R005	4822 116 52257	22k 5% 0.5W
R007	4822 050 14704	470k 5% 0.5W
R008	4822 116 52234	100k 5% 0.5W
R009	4822 116 83874	220k 5% 0.5W
R010	4822 116 52226	560Ω 5% 0.5W
R011	4822 116 52251	18k 5% 0.5W
R012	4822 116 52244	15k 5% 0.5W
R013	5322 116 53564	3Ω3 5% 0.5W
R014	4822 116 81844	2Ω7 5% 0.5W
R015	4822 053 11101	100Ω 5% 1.6W
R016	4822 116 52234	100k 5% 0.5W
R017	4822 100 11873	22k POTMETER
R018	4822 100 10073	100Ω POTMETER
R019	4822 116 52191	33Ω 5% 0.5W
R020▲	4822 052 10101	100Ω 5% 0.33W
R021	4822 116 52233	10k 5% 0.5W
R022	4822 116 52226	560Ω 5% 0.5W
R023	4822 050 11002	1k 5% 0.5W
R024	4822 050 14704	470k 5% 0.5W
R025	4822 116 83703	150Ω 10%
R026	4822 116 52292	560k 5% 0.5W
R027	4822 116 52271	33k 5% 0.5W
R028	4822 116 52233	10k 5% 0.5W
R029	4822 116 52206	120Ω 5% 0.5W
R030	4822 116 52222	390Ω 5% 0.5W
R031	4822 116 52211	150Ω 5% 0.5W
R032	4822 050 11002	1k0 5% 0.5W
R033	4822 116 52226	560Ω 5% 0.5W
R034	4822 116 52271	33k 5% 0.5W
R035	4822 100 20858	1k POTMETER
R036	4822 116 52243	1.5k 5% 0.5W
R037	4822 116 52298	680k 5% 0,5W
R038▲	4822 052 10828	8.2Ω 5% 0.33W
R039	4822 050 11002	1k 5% 0.5W
R040	4822 050 11002	1k 5% 0.5W
R041	4822 116 52263	2.7k 5% 0.5W
R042	4822 050 28209	82Ω 5% 0.5W
R043	4822 116 52303	8.2k 5% 0.5W
R044	4822 116 81154	2.2Ω 5% 0.5W
R045	4822 116 52231	820Ω 5% 0.5W
R046	4822 116 52283	4.7k 5% 0.5W
R047	4822 116 52271	33k 5% 0.5W
R048	4822 116 52233	10k 5% 0.5W
R049	4822 116 52271	33k 5% 0.5W
R050▲	4822 052 10159	15Ω 5% NFR25
R051▲	4822 052 10399	39Ω 5% 1/8W
R052▲	4822 052 10828	8.2Ω 5% 0.33W
R054	4822 050 12709	27Ω 5% 0.5W
R060	4822 050 11002	1k 5% 0.5W
R061	4822 116 52283	4.7k 5% 0.5W
R062	4822 116 52283	4.7k 5% 0.5W
R063	4822 116 52283	4.7k 5% 0.5W
R064	4822 050 11002	1k 5% 0.5W
R065	4822 116 52283	4.7k 5% 0.5W
R066	4822 116 52283	4.7k 5% 0.5W
R067	4822 116 52175	100Ω 5% 0.5W
R068	4822 116 52233	10k 5% 0.5W
R069	4822 116 52256	2.2k 5% 0.5W
R070	4822 116 52256	2.2k 5% 0.5W
R071	4822 116 52182	15Ω 5% 0.5W
R072▲	4822 052 10159	15Ω 5% NFR25
R073	4822 116 52175	100Ω 5% 0.5W
R075	4822 116 52175	100Ω 5% 0.5W
R076	4822 116 52244	15k 5% 0.5W
R077	4822 116 52244	15k 5% 0.5W
R078	4822 116 52244	15k 5% 0.5W
R079	4822 116 52244	15k 5% 0.5W
R080	4822 116 52244	15k 5% 0.5W
R081	4822 116 52244	15k 5% 0.5W
R082	4822 116 52228	680Ω 5% 0.5W
R083	4822 116 52228	680Ω 5% 0.5W
R084	4822 116 52228	680Ω 5% 0.5W
R085	4822 116 52228	680Ω 5% 0.5W
R086	4822 116 52228	680Ω 5% 0.5W
R087	4822 116 52215	220Ω 5% 0.5W
R095	4822 116 52296	6.8k 5% 0.5W
R096	4822 050 21203	12k 5% 0.5W
R097	4822 116 52283	4.7k 5% 0.5W
R098	4822 116 52289	5.6k 5% 0.5W
R099	4822 050 25602	5.6k 5% 0.4W
R100	4822 116 52257	22k 5% 0.5W
R101	4822 050 21203	12k 5% 0.5W
R102	4822 116 52264	27k 5% 0.5W
R103	4822 050 21004	100k 5% 0.4W
R104	4822 050 11504	150k 5% 0.5W
R105	4822 116 52205	1.1k 5% 0.5W
R106	4822 050 14704	470k 5% 0.5W
R107	4822 116 52231	820Ω 5% 0,5W
R108	4822 116 52228	680Ω 5% 0.5W
R109	4822 050 11002	1k 5% 0.5W
R110	4822 116 52263	2.7k 5% 0.5W
R111	4822 116 52289	5.6k 5% 0.5W
R112	4822 116 52269	3.3k 5% 0.5W
R113	4822 116 52234	100k 5% 0.5W
R114	4822 116 52271	33k 5% 0.5W
R115	4822 116 52235	1M 5% 0.5W
R116	4822 116 52251	18k 5% 0.5W
R117	4822 100 20859	470k POTMETER
R118	4822 050 11302	1.3k SFR16
R119	4822 116 52244	15k 5% 0.5W
R120	4822 050 11304	130k 5% 0.5W
R121	4822 116 52184	18Ω 5% 0.5W
R122	4822 116 52197	56Ω 5% 0.5W
R123	4822 116 52224	470Ω 5% 0.5W
R124	4822 050 11002	1k 5% 0.5W
R125	4822 101 40162	10k POTM. + SWITCH
R126	4822 116 52215	220Ω 5% 0.5W
R127	4822 050 28209	82Ω 5% 0.5W
R129	4822 116 52271	33k 5% 0.5W
R130	4822 050 21203	12k 5% 0.5W
R131	4822 116 52296	6.8k 5% 0.5W
R132	4822 116 52296	6.8k 5% 0.5W
R133	4822 116 52283	4.7k 5% 0.5W
R134	4822 116 52228	680Ω 5% 0.5W
R135	4822 116 52284	47k 5% 0.5W
R140	4822 116 52244	15k 5% 0.5W
R141	4822 116 52283	4.7k 5% 0.5W
R142	4822 116 52249	1.8k 5% 0.5W
R143	4822 116 52224	470Ω 5% 0.5W
R144	4822 116 52231	820Ω 5% 0.5W
R146	4822 116 52215	220Ω 5% 0.5W
R147	4822 116 52256	2.2k 5% 0.5W
R148	4822 116 52284	47k 5% 0.5W
R149	4822 116 52252	180k 5% 0.5W
R150	4822 116 52303	8.2k 5% 0.5W
R151	4822 116 52256	2.2k 5% 0.5W
R152	4822 116 52291	56k 5% 0.5W
R153	4822 116 52271	33k 5% 0.5W
R154	4822 050 11002	1k 5% 0.5W
R155	4822 050 11002	1k 5% 0.4W
R159	5322 116 90624	NETWORK RESISTORS
R160	4822 116 52289	5.6k 5% 0.5W
R161	4822 050 14704	470k 5% 0.5W
R162	4822 116 52269	3.3k 5% 0.5W
R163	4822 050 11002	1k 5% 0.5W
R164	4822 050 11002	1k 5% 0.5W
R165	4822 116 52269	3.3k 5% 0.5W
R166	4822 050 11002	1k 5% 0.5W
R167	4822 050 11003	10k 1% 0,4W
R168	4822 050 11003	10k 1% 0,4W
R169	4822 050 12702	2.7k 1% 0,4W
R170	4822 050 18201	820Ω 1% 0,4W
R171	4822 116 52224	470Ω 5% 0.5W
R172	4822 111 50603	1.5M 10% 0.5W
R173	4822 116 52201	75Ω 5% 0.5W
R174	4822 116 52271	33k 5% 0.5W
R180	4822 116 52297	68k 5% 0.5W
R181	4822 116 52233	10k 5% 0.5W
R208	4822 050 11002	1k 1% 0,4W
R210	4822 116 81039	1.8Ω 5% 0.5W
R210	4822 116 80176	1Ω 5% 0.5W
R211	4822 116 52224	470Ω 5% 0.5W
R212	4822 050 11002	1k 1% 0,4W
R213	4822 116 52231	820Ω 5% 0.5W

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T001▲	4822 140 10457	EHT TRANSFORMER
T003▲	4822 146 21666	MAINS TRAFO 220/240V
T003▲	4822 146 21665	MAINS TRAFO 110V
T104	4822 156 21358	COIL 0.20 µH

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U001	4822 209 80817	L7805CV
U002	4822 209 81194	TDA3190P
U003	4822 209 83119	TDA5850
U004	5322 209 86372	ULN2803A
U005	4822 209 31168	ST93C06
U006	4822 209 32972	TMP47C200BN PH02
U007	4822 209 72746	TDA8341/N6
U008	4822 209 80817	L7805CV
U009	4822 209 31254	TDA8215A
U010	4822 209 80797	LM393N
U011	4822 209 80797	LM393N
V001	4822 130 40938	BC548
V002	4822 130 30621	1N4148
V003	4822 130 30621	1N4148
V004	5322 130 30684	1N4002G
V005	4822 130 42489	BYD33G
V007	4822 130 30621	1N4148
V008	5322 130 60135	BU806
V009	4822 130 40938	BC548
V010	4822 130 41486	BYV95B
V011	4822 130 42489	BYD33G
V012	5322 130 31971	RGP15D
V013	4822 130 31173	GP15D
V017	4822 130 31173	GP15D
V018	4822 130 31173	GP15D
V019	4822 130 31173	GP15D
V022	4822 130 63711	BD708
V023	4822 130 44196	BC548C
V024	4822 130 34488	BZX79-B11
V025	4822 130 30621	1N4148
V026	4822 130 30621	1N4148
V027	4822 130 30621	1N4148
V028	4822 130 30621	1N4148
V029	4822 130 40938	BC548
V030	4822 130 30621	1N4148
V031	4822 130 30621	1N4148
V032	4822 130 30621	1N4148
V033	4822 130 30621	1N4148
V034	4822 130 30621	1N4148
V035	4822 130 30621	1N4148
V036	4822 130 31878	1N4003G
V037	4822 130 31878	1N4003G
V038	4822 130 31878	1N4003G
V039	4822 130 41327	BC327-40
V040	4822 130 31878	1N4003G
V041	4822 130 31878	1N4003G
V042	4822 130 31878	1N4003G
V043	4822 130 41327	BC327-40
V044	4822 130 41327	BC327-40
V045	4822 130 41327	BC327-40
V046	4822 130 41327	BC327-40
V057	4822 130 30621	1N4148
V058	4822 130 30621	1N4148
V059	4822 130 31878	1N4003G
V060	4822 130 41782	BF422
V061	4822 130 44196	BC548C
V062	5322 130 80617	BAT8
V063	4822 130 41327	BC327-40
V064	4822 130 40937	BC548B
V065	4822 130 40937	BC548B
V066	4822 130 30621	1N4148
V067	4822 130 34268	BZX79-C16
V068	4822 130 30621	1N4148
V069	4822 130 34142	BZX79-C33
V070	5322 130 42713	PH2222
V071	4822 130 40938	BC548
V072	5322 130 42713	PH2222
V073	5322 130 32162	BB909A
V074	4822 130 40938	BC548
V075	4822 130 40938	BC548
V076	4822 130 30621	1N4148
V077	4822 130 30621	1N4148
V078	4822 130 30621	1N4148
V079	4822 130 30621	1N4148
V080	4822 130 30621	1N4148
V081	4822 130 30621	1N4148
V082	4822 130 30621	1N4148
V083	4822 130 30621	1N4148
V084	4822 130 30621	1N4148
V085	4822 130 30621	1N4148
V086	4822 130 30621	1N4148
V087	4822 130 30621	1N4148
V088	4822 130 30621	1N4148
V089	4822 130 30621	1N4148
V090	4822 130 30621	1N4148
V091	4822 130 30621	1N4148
V092	4822 130 30621	1N4148
V093	4822 130 30621	1N4148
V094	4822 130 30621	1N4148
V095	4822 130 30621	1N4148
V096	4822 130 40938	BC548
V097	4822 130 30621	1N4148
V099	4822 130 34233	BZX79-C5V1
V100	4822 130 40941	BC558
V101	4822 130 40941	BC558
V102	4822 130 34382	BZX79-C8V2
V103	4822 130 40937	BC548B
V104	4822 130 40938	BC548
V105	4822 130 30621	1N4148
V212	5322 130 60068	BC558C
V213	4822 130 40824	BD136
V214	4822 130 30862	BZX79-B9V1

Repair tips

Testing procedure for digital part

1. Apply a signal to "Camera 1", "Camera 3" and Video input connector.

2. Turn on the monitor and make sure that all leds of the membrane push buttons lights up for a moment.
   After this, "Auto" and "Camera 1" leds will light on and on the screen will appear the picture coming from "Camera 1" input.

3. Press the "SEQ. PROG." push buton.
   The "AUTO" led will blink and all the camera leds will light on.

4. Press the "Camera 4" push button to disable the camera from the scanning sequence.
   The relative leds will lights off.

5. Hold down the "Auto" push button and verify that only the "Camera 2" led is on.
   The "Auto" led remains blinking.
   Hold down the "Auto" push button and press the "VCR" push button.
   The "Camera 2" led will light off and the "VCR" led will light on.

6. Release the "Auto" push button and make sure that the "Camera 1", "Camera 2" and "Camera 3" leds are on.
   The "Auto" led remains blinking.

7. Press the "SEQ. PROG." push button.
   The "Auto" led will stop blinking and only "Camera 1" led will be on.

8. Verify that after about 4 seconds the "Camera 1" led light off and the "Camera 2" led light on.
   The screen will be blank.
   A few moments later "Camera 2" led will start to blink.
   The screen remain blank.

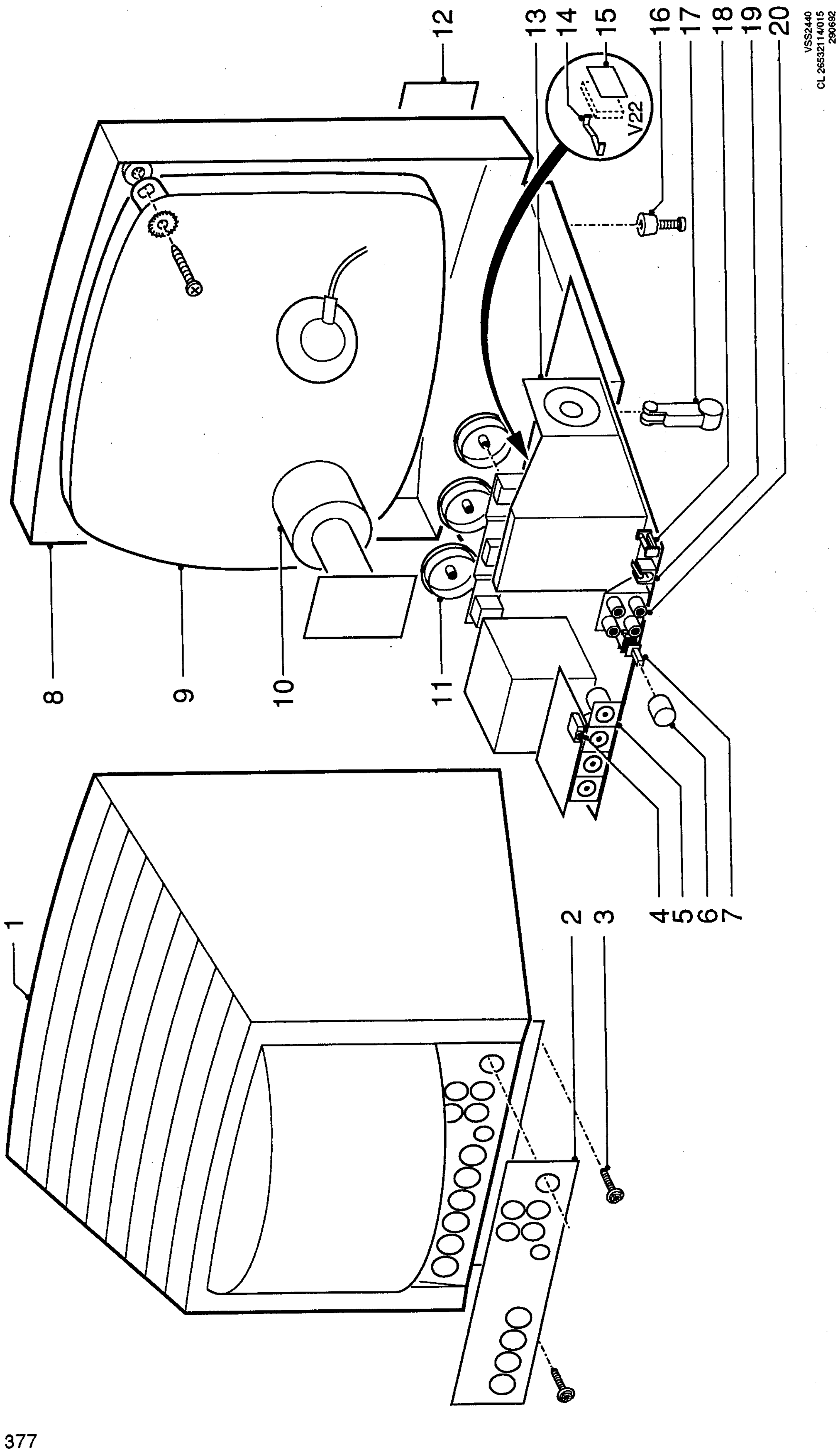
9. Verify that after 3 seconds "Camera 2" led light off and "Camera.3" led light on. A few moment later on the screen will appear the picture coming from "Camera 3" input.

10. Verify after about 4 seconds the "Camera 3" led light off and the "Camera 1' led light on.
    A few moments later on the screen will appear the picture coming from "Camera 1" input.

11. Press the "VCR" push button.
    The "AUTO" and the "Camera 1" leds will light off and the "VCR" led light on.
    A few moments later on the screen will appear the picture coming from the "Video" input.

12. Turn-off the monitor.

9.1 VSS2440 Exploded view



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VSS2440
CL 26532114/015
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Spare parts lists

Mechanical parts

VSS2440/00T/01T, VS24415R AND 42MS405T
(/05 in following list indicates versions VS24415R & 42MS405T)

1	4822 432 10972	REAR COVER/..T
1	4822 432 10973	REAR COVER/..R
2	4822 454 12819	REAR TEXTPLATE/..T
2	4822 454 12824	REAR TEXTPLATE/..R
3	4822 502 30096	SCREW 3.5X19
4	4822 267 31487	PHONE JACK X2
5	4822 265 10035	CONNECTOR X24..X27
6	4822 410 61891	PUSH BUTTON /..T
6	4822 410 61892	PUSH BUTTON /..R
7	5322 277 21222	SWITCH S1
8	4822 451 21042	FRONT MASK/..T
8	4822 451 21043	FRONT MASK 42MS405T
8	4822 451 11002	FRONT MASK/..R
9	4822 131 20473	PICTURE TUBE 12"
10	4822 150 10172	DEFLECTION UNIT
11	4822 413 31699	KNOB/..T
11	4822 413 31701	KNOB/..R
12	4822 432 10974	FRONT PANEL /..T
12	4822 432 10977	FRONT PANEL /..R
13	4822 240 40203	LOUDSPEAKER
14	4822 255 40128	SPRING CLIP
15	4822 255 40133	INSULATING PLATE
16	4822 462 41921	FOOT
17A	4822 462 41922	FOOT RIGHT/..T
17A	4822 462 41924	FOOT RIGHT/..R
17B	4822 462 41923	FOOT LEFT/..T
17B	4822 462 41925	FOOT LEFT/..R
18	4822 492 60063	SPRING FOR FUSE
19	4822 265 20259	DC SOCKET X23
20	4822 267 20284	RCA JACK X40
	4822 736 52909	D.F.U. VSS2440
	4822 736 52911	D.F.U. VS24415R
	4822 736 52912	D.F.U. 42MS405T

Electrical parts

Miscellaneous

B001	4822 242 30257	MICROPHONE /05
F001	4822 253 50143	FUSE T 500mA /05
F201	5322 253 30368	FUSE T 2A
G301	4822 242 72579	RESONATOR 4MHZ
S501	5322 277 21222	SWITCH CH3/CH4

Transformers

T001	4822 140 10439	EHT TRAFO
T003	4822 146 21666	MAINS TRAFO /00/01
T003	4822 146 21665	MAINS TRAFO /05
T104	4822 156 21358	COIL 0.2μH

Coils

L001	4822 157 51511	INDUCTANCE 12μH /00/01
L001	4822 157 51612	INDUCTANCE 18μH /05
L003	4822 121 40543	CER. FILTER 5.5MHZ /00
L003	4822 242 70279	CER. FILTER 6.0MHZ /01
L003	4822 242 70737	CER. FILTER 4.5MHZ /05
L004	4822 157 53139	COIL 4.7μH
L008	4822 157 50963	COIL 2.2μH
L009	4822 157 53139	COIL 4.7μH
L010	4822 157 53139	COIL 4.7μH
L011	4822 157 53139	COIL 4.7μH
L012	4822 157 53139	COIL 4.7μH
L013	4822 157 53139	COIL 4.7μH
L016	4822 157 63936	COIL 22μH
L017	4822 157 63909	LINEARITY CORRECTOR
L099	4822 526 10574	BEAD
L101	4822 156 21355	COIL 0.62μH
L102	4822 156 21356	COIL 0.3μH
L103	4822 156 21357	COIL 0.26μH
L105	4822 156 21233	COIL 9.6μH /00
L105	4822 157 51751	COIL 9.6μH /01
L105	4822 156 21164	COIL 15μH /05
L106	4822 156 21667	COIL VARIABLE /05

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C001	4822 124 40244	2μF2 63V
C002	5322 122 32052	680pF 10% 100V
C003	5322 121 42925	150nF 10% 100V
C004	4822 122 31316	100pF 100V
C005	4822 124 40435	10μF 50V
C006	4822 121 41922	22nF 10% 250V
C007	4822 121 41922	22nF 10% 250V
C008	4822 124 40207	100μF 25V
C009	4822 126 12158	100nF 100V
C010	4822 124 40433	47μF 25V
C011	4822 121 41672	100nF 10% 100V
C012	4822 121 42766	12nF 10% 400V
C013	4822 121 41673	220nF 10% 100V
C014	4822 121 42937	2nF7 2% 250V
C015	4822 124 40184	1000μF 10V
C016	4822 121 41672	100nF 10% 100V
C017	4822 124 40646	470μF 40V
C018	4822 124 40804	22μF 40V
C019	4822 121 41893	3μF9 10% 100V
C020	4822 124 40244	2μF2 63V
C021	4822 121 70111	20nF 5% 630V
C022	4822 124 40248	10μF 63V
C023	4822 122 31349	68pF 100V /00/05
C023	4822 122 32027	56pF 100V /01
C024	4822 121 41689	100nF 10% 250V
C025	5322 122 32799	390pF 10% 100V
C026	4822 121 41984	47nF 10% 100V
C027	5322 121 42925	150nF 10% 100V
C028	5322 121 42925	150nF 10% 100V
C029	4822 124 80143	4μF7 200V
C030	4822 124 41393	220μF 25V
C031	4822 124 41393	220μF 25V
C032	5322 122 32311	470pF 10% 100V
C033	5322 122 32332	1nF5 10% 100V
C034	4822 121 41673	220nF 10% 100V
C035	4822 124 40804	22μF 63V
C036	4822 124 40433	47μF 25V
C037	4822 124 40242	1μF 63V
C038	4822 124 40242	1μF 63V
C039	4822 124 40804	22μF 63V
C040	4822 122 30103	22nF -20+80% 63V
C041	4822 122 31052	8pF2 100V
C042	4822 122 30103	22nF -20+80% 63V
C043	4822 126 12159	47nF 100V
C044	4822 122 31429	6nF8 -20+80% 100V
C045	4822 124 40248	10μF 63V
C046	4822 126 12158	100nF 100V
C047	4822 122 31061	18pF 100V
C048	4822 122 40112	560pF 10% 500V
C049	4822 124 40433	47μF 25V
C050	5322 122 32818	2nF2 10% 100V
C051	5322 122 32261	4nF7 10% 100V
C050	5322 122 32818	2nF2 10% 100V
C051	5322 122 32261	4nF7 10% 100V
C052	4822 124 20697	10μF 25V
C053	4822 126 12158	100nF 100V
C054	4822 124 40433	47μF 25V
C055	5322 122 32818	2nF2 10% 100V

10.2 VSS2440 Spare parts lists

Electrical parts

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C056	4822 124 40785	3300µF 25V
C057	4822 124 40849	330µF 25V
C058	4822 124 40849	330µF 25V
C059	4822 126 12158	100nF 100V
C060	4822 124 40242	1µF 63V
C061	4822 122 31052	8pF2 100V
C062	4822 122 31052	8pF2 100V /00/01
C062	4822 122 31049	6pF8 100V /05
C063	4822 122 31414	10nF -20+80% 100V
C064	4822 122 31038	2pF7 100V
C065	5322 122 32163	5pF6 100V
C066	5322 122 32163	5pF6 100V
C067	4822 122 31049	6pF8 100V
C068	4822 122 31049	6pF8 100V /00/01
C068	5322 122 32163	5pF6 100V /05
C069	5322 122 34107	3pF9 100V
C070	5322 122 34107	3pF9 100V
C071	4822 122 31414	10nF -20+80% 100V
C072	4822 122 31414	10nF -20+80% 100V
C073	5322 122 32779	3nF9 10% 100V
C074	4822 122 32185	10pF 100V
C075	4822 124 40242	1µF 63V
C076	4822 122 31414	10nF -20+80% 100V
C078	5322 122 32261	4nF7 10% 100V
C079	4822 122 31316	100pF 100V
C080	5322 122 32334	220pF 10% 100V
C096	4822 126 12158	100nF 100V
C097	4822 124 40181	220µF 10V
C098	4822 124 40242	1µF 63V
C099	4822 126 12158	100nF 100V
C103	4822 126 12158	100nF 100V
C104	4822 124 41833	10µF 20% 160V
C105	4822 121 43066	1nF 5% 400V
C106	5322 122 32072	33pF 100V
C107	4822 122 30103	22nF -20+80% 63V
C108	4822 124 40433	47µF 25V
C109	5322 122 32331	1nF 10% 100V
C110	5322 122 32072	33pF 100V
C111	4822 122 31069	39pF 100V
C112	4822 122 31349	68pF 100V
C113	4822 122 31414	10nF -20+80% 100V
C114	4822 122 31036	2pF2 100V
C115	4822 122 31072	47pF 100V
C130	4822 124 40272	33µF 16V
C131	4822 122 30103	22nF -20+80% 63V
C132	4822 122 30103	22nF -20+80% 63V
C133	4822 122 30103	22nF -20+80% 63V
C135	4822 121 42408	220nF 10% 63V
C136	5322 122 32072	33pF 100V

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C137	5322 122 32072	33pF 100V
C138	4822 121 41689	100nF 10% 250V
C139	4822 122 33399	1nF -20+80% 63V
C140	4822 122 31414	10nF -20+80% 100V
C141	4822 122 31237	82pF 100V
C142	4822 124 40244	2µF2 63V
C143	4822 124 40433	47µF 25V
C145	4822 122 90109	NETWORK 4X1nF
C146	4822 122 90108	NETWORK 8X 100pF
C147	4822 122 90106	NETWORK 6X 100pF
C148	4822 122 90107	NETWORK 8X1nF
C149	5322 122 32818	2nF2 10% 100V
C150	4822 126 12158	100nF 100V
C151	4822 124 20678	47µF 10V
C152	5322 121 42025	220nF 10% 250V
C153	4822 121 51252	470nF 5% 63V
C154	5322 121 42489	33nF 5% 250V

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R001	4822 116 52304	82kΩ 5% 0.5W
R002	4822 116 52283	4kΩ7 5% 0.5W
R003	4822 116 52233	10kΩ 5% 0.5W
R005	4822 116 52257	22kΩ 5% 0.5W
R007	4822 050 18204	820kΩ 5% 0.5W
R008	4822 116 52234	100kΩ 5% 0.5W
R009	4822 116 52258	220kΩ 5% 0.5W
R010	4822 116 52226	560Ω 5% 0.5W
R011	4822 116 52251	18kΩ 5% 0.5W
R012	4822 116 52244	15kΩ 5% 0.5W
R013	5322 116 53564	3Ω3 5% 0.5W
R014	4822 116 81844	2Ω7 5% 0.5W
R015	4822 053 11101	100Ω 5% 1.6W
R016	4822 116 52234	100kΩ 5% 0.5W
R017	4822 100 11873	TRIMPOTM. 22kΩ 20%
R018	4822 100 20857	TRIMPOTM. 100Ω 20%
R019	4822 116 52191	33Ω 5% 0.5W
R020	4822 052 10101	100Ω 5% 0.33W NFR25
R021	4822 116 52233	10kΩ 5% 0.5W
R022	4822 116 52226	560Ω 5% 0.5W
R023	4822 116 52215	220Ω 5% 0.5W
R024	4822 050 14704	470kΩ 5% 0.5W
R025	4822 116 83703	150Ω 10%
R026	4822 116 52292	560kΩ 5% 0.5W
R027	4822 116 52271	33kΩ 5% 0.5W
R028	4822 116 52233	10kΩ 5% 0.5W
R029	4822 116 52215	220Ω 5% 0.5W
R030	4822 116 52222	390Ω 5% 0.5W
R031	4822 116 52211	150Ω 5% 0.5W
R032	4822 050 11002	1kΩ 5% 0.5W
R033	4822 116 52226	560Ω 5% 0.5W
R034	4822 116 52271	33kΩ 5% 0.5W

-▭-

R035	4822 100 20858	1kΩ POTMETER
R036	4822 050 11002	1kΩ 5% 0.5W
R037	4822 116 52235	1MΩ 5% 0.5W
R038	4822 052 10828	8Ω2 5% 0.33W NFR25
R039	4822 050 11002	1kΩ 5% 0.5W
R040	4822 050 11002	1kΩ 5% 0.5W
R041	4822 116 52263	2kΩ7 5% 0.5W
R042	4822 050 28209	82Ω 5% 0.5W
R043	4822 116 52303	8kΩ2 5% 0.5W
R044	4822 116 81154	2Ω2 5% 0.5W
R045	4822 116 52231	820Ω 5% 0.5W
R046	4822 116 52283	4kΩ7 5% 0.5W
R047	4822 116 52271	33kΩ 5% 0.5W
R048	4822 116 52233	10kΩ 5% 0.5W
R049	4822 116 52271	33kΩ 5% 0.5W
R050	4822 052 10159	15Ω 5% NFR25
R051	4822 052 11339	33Ω 5% 0.5W NFR25
R052	4822 052 10828	8Ω 2 5% 0.33W NFR25
R054	4822 050 12709	27Ω 5% 0.5W
R060	4822 050 11002	1kΩ 5% 0.5W
R061	4822 116 52283	4kΩ7 5% 0.5W
R062	4822 116 52283	4kΩ7 5% 0.5W
R063	4822 116 52283	4kΩ7 5% 0.5W
R064	4822 050 11002	1kΩ 5% 0.5W
R065	4822 116 52283	4kΩ7 5% 0.5W
R066	4822 116 52283	4kΩ7 5% 0.5W
R067	4822 116 52175	100Ω 5% 0.5W
R068	4822 116 52233	10kΩ 5% 0.5W
R069	4822 116 52256	2kΩ2 5% 0.5W
R070	4822 116 52256	2kΩ2 5% 0.5W
R071	4822 116 52182	15Ω 5% 0.5W
R072	4822 052 10159	15Ω 5% NFR25
R073	4822 116 52175	100Ω 5% 0.5W
R075	4822 116 52175	100Ω 5% 0.5W
R076	4822 116 52276	3kΩ9 5% 0.5W
R077	4822 050 11002	1kΩ 5% 0.5W
R078	4822 050 11002	1kΩ 5% 0.5W
R079	4822 050 11002	1kΩ 5% 0.5W
R082	4822 116 52269	3kΩ3 5% 0.5W
R083	4822 116 52269	3kΩ3 5% 0.5W
R084	4822 116 52269	3kΩ3 5% 0.5W
R087	4822 116 52215	220Ω 5% 0.5W
R105	4822 116 52205	1kΩ1 5% 0.5W
R106	4822 050 14704	470kΩ 5% 0.5W
R107	4822 050 11002	1kΩ 5% 0.5W
R108	4822 116 52269	3kΩ3 5% 0.5W
R109	4822 050 11002	1kΩ 5% 0.5W
R110	4822 116 52263	2kΩ7 5% 0.5W
R111	4822 116 52289	5kΩ6 5% 0.5W
R112	4822 116 52269	3kΩ3 5% 0.5W
R113	4822 116 52234	100kΩ 5% 0.5W
R114	4822 116 52271	33kΩ 5% 0.5W
R115	4822 116 52235	1MΩ 5% 0.5W
R116	4822 116 52251	18kΩ 5% 0.5W

Spare parts lists

Electrical parts

R117	4822 100 20859	470kΩ POT. METER
R118	4822 050 11302	1kΩ3 5% 0.5W
R119	4822 116 52244	15kΩ 5% 0.5W
R120	4822 050 11304	130kΩ 5% 0.5W
R121	4822 050 12709	27Ω 5% 0.5W
R122	4822 116 52195	47Ω 5% 0.5W
R123	4822 116 52224	470Ω 5% 0.5W
R124	4822 050 11002	1kΩ 5% 0.5W
R125	4822 100 90103	10kΩ POTM.+SWITCH
R127	4822 050 28209	82Ω 5% 0.5W
R129	4822 116 52271	33kΩ 5% 0.5W
R130	4822 050 21203	12kΩ 5% 0.5W
R131	4822 116 52296	6kΩ8 5% 0.5W
R132	4822 116 52296	6kΩ8 5% 0.5W
R133	4822 116 52283	4kΩ7 5% 0.5W
R134	4822 116 52228	680Ω 5% 0.5W
R135	4822 116 52284	47kΩ 5% 0.5W
R140	4822 116 52271	33kΩ 5% 0.5W
R141	4822 116 52283	4kΩ7 5% 0.5W
R142	4822 116 52249	1kΩ8 5% 0.5W
R143	4822 116 52224	470Ω 5% 0.5W
R144	4822 116 52231	820Ω 5% 0.5W
R147	4822 116 52256	2kΩ2 5% 0.5W
R148	4822 116 52284	47kΩ 5% 0.5W
R149	4822 116 52252	180kΩ 5% 0.5W
R150	4822 116 52303	8kΩ2 5% 0.5W
R151	4822 116 52256	2kΩ2 5% 0.5W
R152	4822 116 52291	56kΩ 5% 0.5W
R153	4822 116 52271	33kΩ 5% 0.5W
R154	4822 050 11002	1kΩ 5% 0.5W
R155	4822 050 11002	1kΩ 5% 0.4W
R159	5322 116 90624	NETWORK 8X4kΩ7
R160	4822 116 52289	5kΩ6 5% 0.5W
R162	4822 116 52269	3kΩ3 5% 0.5W
R163	4822 050 11002	1kΩ 5% 0.5W
R164	4822 050 11002	1kΩ 5% 0.5W
R165	4822 116 52269	3kΩ3 5% 0.5W
R166	4822 050 11002	1kΩ 5% 0.5W
R167	4822 116 52233	10kΩ 5% 0.5W
R168	4822 116 52219	330Ω 5% 0.5W
R169	4822 050 21003	10kΩ 5% 1/8W
R170	4822 116 52303	8kΩ2 5% 0.5W
R171	4822 116 52224	470Ω 5% 0.5W
R172	4822 111 50603	1M5Ω 10% 0.5W /05
R173	4822 116 52201	75Ω 5% 0.5W
R180	4822 116 52297	68kΩ 5% 0.5W

U001	4822 209 80817	L7805CV
U002	4822 209 81194	TDA3190P
U003	4822 209 83119	TDA5850
U004	5322 209 86372	ULN2803A
U005	4822 209 51569	NMC9306N
U006	4822 209 31372	TMP47C200AN
U007	4822 209 72746	TDA8341/N6
U008	4822 209 80817	L7805CV
U009	4822 209 31254	TDA8215A
U011	4822 209 80797	LM393N

V001	4822 130 40938	BC548
V002	4822 130 30621	1N4148
V003	4822 130 30621	1N4148
V004	5322 130 30684	1N4002G
V005	4822 130 42489	BYD33G
V007	4822 130 30621	1N4148
V008	5322 130 60135	BU806
V009	4822 130 40938	BC548
V010	4822 130 41486	BYV95B
V011	4822 130 42489	BYD33G
V012	5322 130 31971	RGP15D
V013	4822 130 31878	1N4003G
V017	4822 130 31878	1N4003G
V018	4822 130 31173	GP15D
V019	4822 130 31878	1N4003G
V022	4822 130 40995	BD434
V023	4822 130 44196	BC548C
V024	4822 130 34488	BZX79-B11
V025	4822 130 30621	1N4148
V026	4822 130 30621	1N4148
V027	4822 130 30621	1N4148
V028	4822 130 30621	1N4148
V029	4822 130 40938	BC548
V030	4822 130 30621	1N4148
V031	4822 130 30621	1N4148
V032	4822 130 30621	1N4148
V033	4822 130 30621	1N4148
V036	4822 130 31878	1N4003G
V039	4822 130 40854	BC327
V040	4822 130 31878	1N4003G
V041	4822 130 31878	1N4003G
V042	4822 130 31878	1N4003G
V043	4822 130 40854	BC327
V044	4822 130 40854	BC327
V060	4822 130 41782	BF422
V061	4822 130 44196	BC548C
V062	5322 130 80617	BAT8
V063	4822 130 40854	BC327
V064	4822 130 40937	BC548B
V065	4822 130 40937	BC548B
V066	4822 130 30621	1N4148
V067	4822 130 31024	BZX79-C18
V068	4822 130 30621	1N4148
V069	4822 130 34142	BZX79-C33
V070	5322 130 42713	PH2222
V071	4822 130 40938	BC548
V072	5322 130 42713	PH2222
V073	5322 130 32162	BB909A
V074	4822 130 40938	BC548
V075	4822 130 40938	BC548
V076	4822 130 30621	1N4148
V077	4822 130 30621	1N4148
V078	4822 130 30621	1N4148
V079	4822 130 30621	1N4148
V080	4822 130 30621	1N4148
V081	4822 130 30621	1N4148
V082	4822 130 30621	1N4148
V083	4822 130 30621	1N4148
V084	4822 130 30621	1N4148
V085	4822 130 30621	1N4148
V086	4822 130 30621	1N4148
V087	4822 130 30621	1N4148
V088	4822 130 30621	1N4148
V089	4822 130 30621	1N4148
V090	4822 130 30621	1N4148
V091	4822 130 30621	1N4148
V092	4822 130 30621	1N4148
V093	4822 130 30621	1N4148
V094	4822 130 30621	1N4148
V095	4822 130 30621	1N4148
V096	4822 130 40938	BC548
V097	4822 130 30621	1N4148
V099	4822 130 34233	BZX79-C5V1
V100	4822 130 40941	BC558
V101	4822 130 40941	BC558
V102	4822 130 34382	BZX79-C8V2
V103	4822 130 40937	BC548B

Connectors

X001	4822 265 30378	SOCKET 4P
X002	4822 267 31487	STEREO PHONE JACK
X004	4822 265 41231	18P CON.
X015	4822 492 60063	SPRING FOR FUSE
X016	4822 492 60063	SPRING FOR FUSE
X023	4822 265 20259	DC SOCKET EXT. SUPPLY
X024	4822 265 10035	SOCKET FEM. COAXIAL
X025	4822 265 10035	SOCKET FEM. COAXIAL
X026	4822 265 10035	SOCKET FEM. COAXIAL
X027	4822 265 10035	SOCKET FEM. COAXIAL
X036	5322 264 54017	MALE CONTACT 3 PIN
X040	4822 267 20284	RCA JACK
X506	5322 255 70224	CRT SOCKET

Observation Monitor

Service
Service
Service

VSSX440

(X=2,3,4) OP35 94.01

Service Information

This service info covers all following types & versions of B/W observation monitors:
VSS3440/00T/01T, VS34405R (= enhanced)
VSS2440/00T/01T, VS24415R, 42MS405T (= basic)
VSS4440/00T/01T, VS44405R (= slave)

The circuit diagram A , B and C can be used for both types of observation monitors VSS3440 & VSS2440 (all Europe, UK and USA versions) with little exceptions mentioned on the diagram.
For the slave monitor VSS4440, there is a separate circuit diagram A enclosed.

These circuit diagrams are updated with the modifications introduced till factory code OP35...
Thus, besides new changes these schematics are also updated with those in OP15, which have already been informed to you via Service Information 93.01, service code 4822 727 19916 and those in OP20, which have already been informed to you via Service Information 93.02, service code 4822 727 19972.
The modifications which are introduced in the relay-out after OP20 are mentioned in the next survey.

Besides the updated circuit diagrams also the complete updated spare parts lists is given in this service information.

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2. Survey of used OP.. codes 3
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PCS 80 566

List of changes

List of changes introduced during the production since OP20, chronological per OP code/production week.

Introduction:	Item:		Service code:
OP20 9315	**All models**		
	Changed:	V008 from BU806 into BU806	5322 130 60135
OP20 9317	**1 - All models**		
	2 - All models except slave		
	Changed:	1 - C021 polcap 18N 630V into 20N 630V	4822 121 70111
		2 - R107 resistor 1k0 into 820R	4822 116 52231
OP20 9321	Changed:	membrane foil for Europe/UK	4822 432 10979
		membrane foil for USA	4822 432 10978
OP20 9328	**All models**		
	Changed:	V067 from BZX79-C18 into BZX79-C16	4822 130 34268
OP20 9329	**1 - For Basic and Enhanced (Europe)**		
	2 - For Basic Ph. + Magnavox + Enhanced (USA)		
	Changed:	1 - L003 ceramic filter	4822 242 72547
		2 - L003 ceramic filter	4822 242 71725
OP20 9334	**All models except Slave**		
	Changed:	R159 resistor network	5322 116 90624
OP21 9337	**All models except Slaves**		
	Changed:	U006 (microprocessor) new software version	4822 209 32972
	All models		
	Changed:	R018 vertical trimpot into	4822 100 10073
	All Basic and Enhanced (Euro/UK) versions		
	Changed:	C061 cercap from 8P2 100V into 100P 100V	4822 122 32185
		C064 cercap from 2P7 100V into 3P9 100V	5322 122 34107
OP29 9350	**All models**		
	Added:	Extra panel (short circuit protection) on P.W. board	
		on the place of L201	
		For the "basic" sets	4822 212 31268
		For the "enhanged" sets	4822 212 31269
	Changed:	C053 form 100 nF into 100 µF	4822 124 41525
		R076 from 3,9 kΩ into 15 kΩ	4822 116 52244
		R077 from 1 kΩ into 15 kΩ	4822 116 52244
		R078 from 1 kΩ into 15 kΩ	4822 116 52244
		R079 from 1 kΩ into 15 kΩ	4822 116 52244
		R082 from 3,3 kΩ into 680 Ω	4822 116 52228
		R083 from 3,3 kΩ into 680 Ω	4822 116 52228
		R084 from 3,3 kΩ into 680 Ω	4822 116 52228
		R085 from 3,3 kΩ into 680 Ω	4822 116 52228
		V039 from BC327 into BC327/40	4822 130 41327
		V043 from BC327 into BC327/40	4822 130 41327
		V044 from BC327 into BC327/40	4822 130 41327
		V063 from BC327 into BC327/40	4822 130 41327
		V203 changed into a wire	
	Changed:	For **only** the "enhanged" versions	
		R080 from 1 kΩ into 15 kΩ	4822 116 52244
		R081 from 1 kΩ into 15 kΩ	4822 116 52244
		R085 from 3,3 kΩ into 680 Ω	4822 116 52228
		R086 from 3,3 kΩ into 680 Ω	4822 116 52228
		R108 from 3,3 kΩ into 680 Ω	4822 116 52228
		V045 from BC327 into BC327/40	4822 130 41327
		V046 from BC327 into BC327/40	4822 130 41327
	Delete:	R201- 560 Ω	
		R202- 220 Ω	
		R203- 47 KΩ	
		R204- 1 KΩ	
		R205- 1 KΩ	
		R206- 22 Ω	
		R207- 75 Ω	
		V201- BZX79/C2V4	
		V202- BC548	
		V203- BD434	
		V204- 1N4148	
		L201- choke coil	
OP.. 9351	**All models**		
	Changed:	V212 from BC558C into BC558C	5322 130 60068
		V214 from BZX79/B9V1 into BZX79/B9V1	4822 130 30862
OP.. 9401	**All models**		
	Changed:	C201 from 2,2 µF into 2,2 µF	4822 124 41654
OP30 9401 Europe	**All "basic" & "enhanged" VM4 models**		
OP30 9424 USA	Changed:	Flat cable X010 into a lead	
		C053 from 100 nF into 100 µF	4822 124 41525
		R076 from 3,9 kΩ into 15 kΩ	4822 116 52244
		R077 from 1 kΩ into 15 kΩ	4822 116 52244
		R078 from 1 kΩ into 15 kΩ	4822 116 52244
		R079 from 1 kΩ into 15 kΩ	4822 116 52244
		R082 from 3,3 kΩ into 680 Ω	4822 116 52228

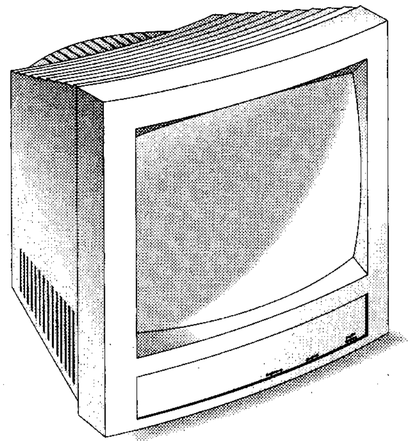
12" Monochrome observation monitor

VSS4440/00T/01T

VS44405R

Service
Service
Service

V17778



Service Manual

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PHILIPS

PCS 42 383

1.2 VSS4440 Technical data

General	-/00T	-/01T	-05R
Mains voltage	220V ± 10%	240V ± 10%	110V ± 10%
Mains frequency	50Hz	50Hz	60Hz
External DC input	11,8V - 16V (∅ 6.5mm)		
Power consumption	31W (AC), camera inclusive 19W (DC), camera inclusive		
Weight	6,5kg		
Dimensions (WxHxD)	345x302x300mm		
High voltage (zero beam)	10,8KV		
Ambient temperature	+5 - +45 °C		

TV system

Scanning system	CCIR-B (VHF)	CCIR-I	EIA
Number of lines	625	625	525
Field frequency	50Hz	50Hz	60Hz
Channel bandwidth	7MHz	8MHz	6MHz
Video bandwidth	5MHz	5,5MHz	4,2MHz
Difference sound/ video carrier	+5,5MHz	+6MHz	+4,5MHz

Audio

Power output : 0,7W
Frequency response : 120Hz-3KHz (-3dB)

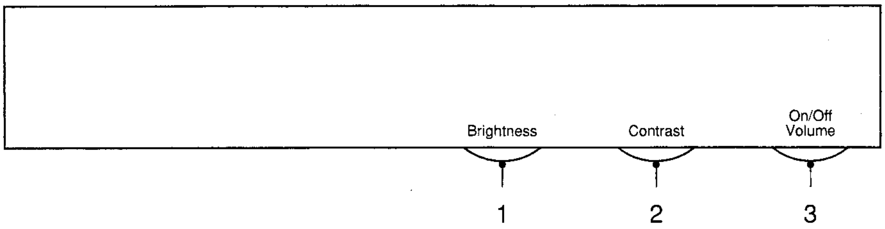
VCR signals

video input (CVBS) : 1Vpp on 75Ω (0,5 - 1Vpp)
audio input : 1Vrms on 600Ω (100mV - 2Vrms on 10KΩ)

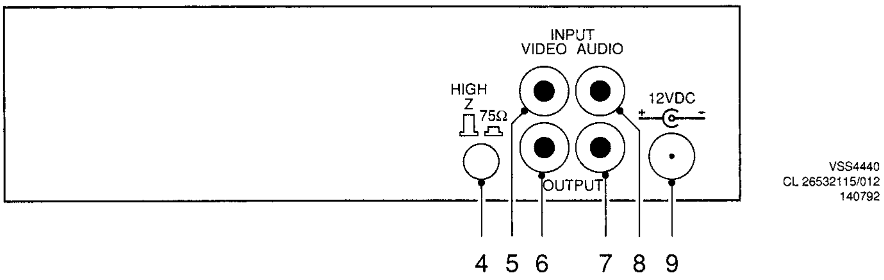
video output (CVBS) : 1Vpp on 75Ω (with camera signal from 2 to 10mV)
audio output : 1Vrms on 600Ω

Controls and In/Outputs

FRONT VIEW
OPERATING AND CONTROL PANEL


Brightness
Contrast
On/Off
Volume
1
2
3

REAR VIEW
IN / OUTPUT


INPUT
VIDEO AUDIO
HIGH
Z
75Ω
12VDC
OUTPUT
4 5 6 7 8 9
VSS4440
CL 26532115/012
140792

Operating functions

1 Brightness control
2 Contrast control
3 ON/OFF swith + Volume control
4 High Impedence / 75Ω Video input switch*
(* see warning 11 on page 3.1)

In/Outputs

5 Video input socket
6 Video output socket
7 Audio output socket
8 Audio input socket
9 External supply input socket (∅ 6,5mm)

3.1 VSS4440 Warnings and Notes

Warnings

1. Safety regulations require that the unit should be returned in its original conditions and that components identical to the original components are used. The safety components are indicated by the symbol ⚠.

2. In order to prevent damage to **ICs** and transistors, all high-voltage flash-overs must be avoided. In order to prevent damage to the picture tube, the method shown inFig. 3.1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is **0 V** (after approx. 30s).

3. **ESD**
   All **ICs** and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten the life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the earth of the unit. Keep components and tools also at this same potential.

4. When repairing a unit, always connect it to the mains voltage via an isolating transformer.

5. Be careful when taking measurements in the high-voltage section and on the picture tube panel.

6. It is recommended that safety goggles are worn when replacing the picture tube.

7. When making settings, use plastic rather than metal tools.
   This will prevent any short-circuit and the danger of a circuit becomes unstable.

8. Never replace modules or other components while the unit is switched on.

9. After repair the wiring should be fastened once more in the cable clamps for this purpose.

10. When no input signals are connected to the monitor, the screen will be blanked.

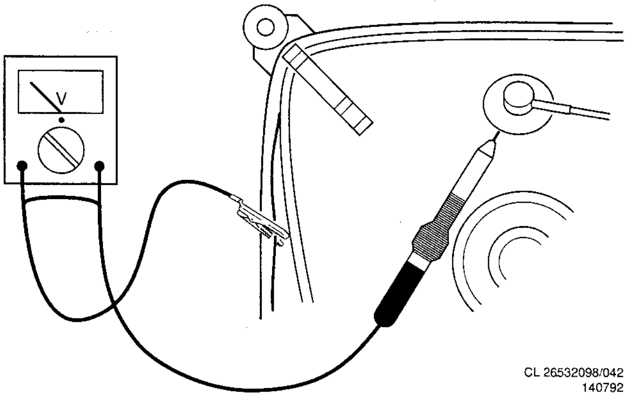
11. When the monitor is the only peripheral connected to the basic equipment or the last one of a series of (≥ 2) monitors, you should push the Video Input Switch (item 4 on rear view). This changes the high input impedance to 75Ω.

Notes

1. The direct voltages and oscillograms are average voltages. They have been measured by using a pattern generator and under the following conditions:
   - Signal pattern: grey-scale
   - Adjust brightness and contrast control for the mechanical mid-position (click position)
   - Volume control in minimum position

   Remark: Apply pattern generator via a capacitor of 4.7nF to video input for DC blocking.

2. The semiconductors indicated in the circuit diagram(s) and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.



CL 26532098/042
140792

Fig. 3.1

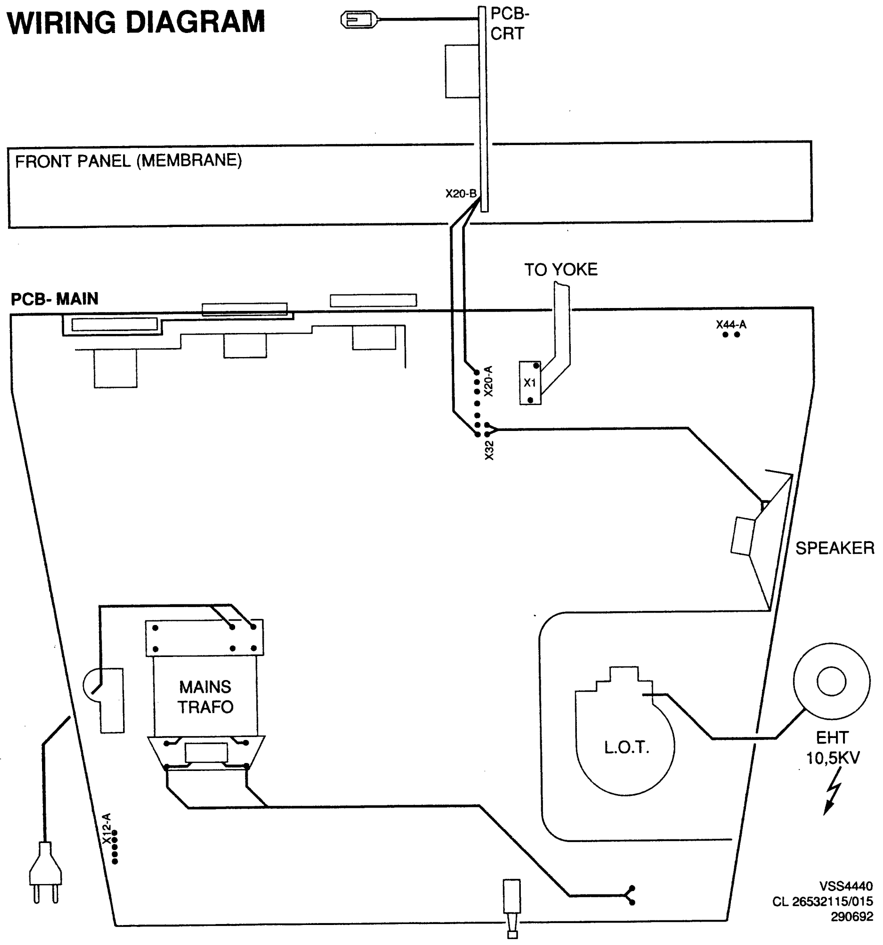
3. The print layout of Main Panel is same as that of VSS3440, which is provided with 2-way sound and alarm features. But VSS4440 is without these features. Thus, various components associated with alarm and 2-way sound shown in the print layout, may actually NOT be present on the panels of VSS4440.

Mechanical instructions

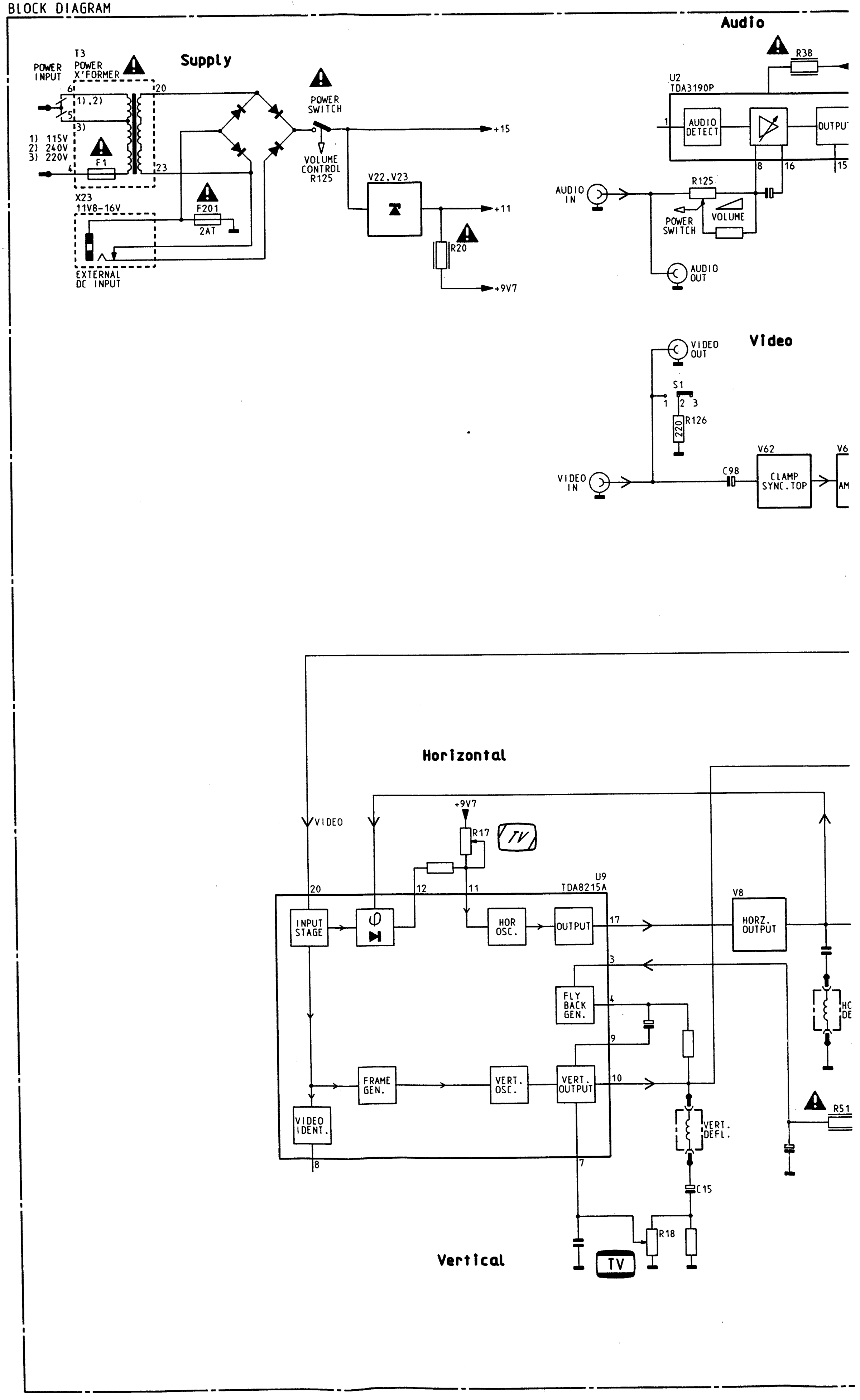
1. Service position of Main PCB

Remove back cover (2 screws)
- Remove main PCB from bottom plate (2 screws)
- Remove operating membrane connection from Main PCB
- Main PCB can put in a vertical service position now.

WIRING DIAGRAM

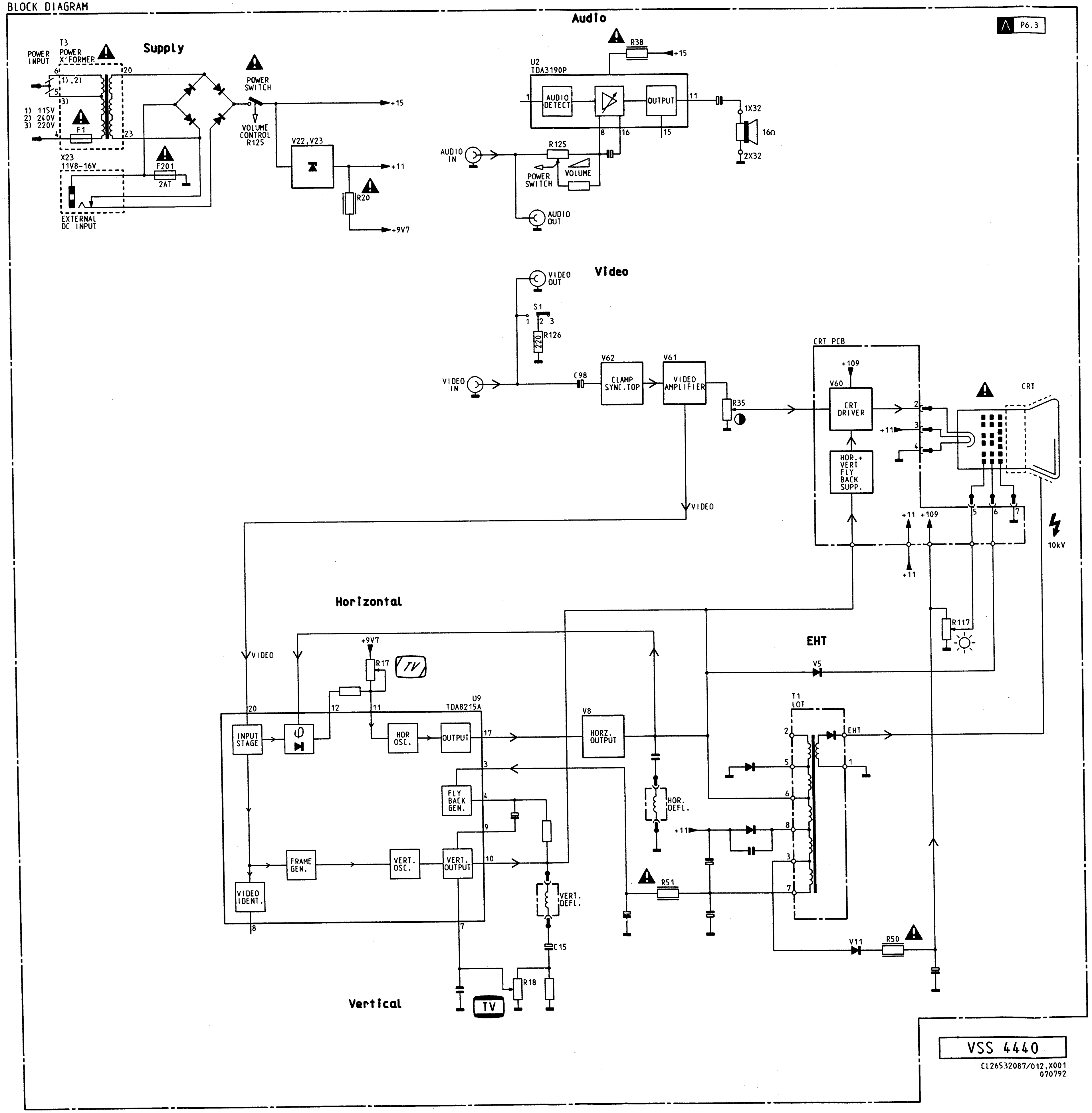

PCB-CRT
FRONT PANEL (MEMBRANE)
X20-B
TO YOKE
PCB- MAIN
X44-A
X1
X20-A
X32
SPEAKER
MAINS TRAFO
L.O.T.
EHT 10,5KV
X12-A
VSS4440
CL 26532115/015
290692

Block diagram


BLOCK DIAGRAM
Supply
POWER INPUT
T3 POWER X'FORMER
6
1),2)
5
3)
1) 115V
2) 240V
3) 220V
F1
4
20
23
X23 11V8-16V
F201
2AT
EXTERNAL DC INPUT
POWER SWITCH
VOLUME CONTROL R125
+15
V22,V23
+11
R20
+9V7
Audio
R38
U2 TDA3190P
1
AUDIO DETECT
OUTPU
8
16
15
AUDIO IN
R125
POWER SWITCH
VOLUME
AUDIO OUT
VIDEO OUT
Video
S1
1 2 3
R126
220
VIDEO IN
C98
V62
CLAMP SYNC.TOP
V6
AM
Horizontal
VIDEO
+9V7
R17
TV
U9 TDA8215A
20
12
11
INPUT STAGE
HOR OSC.
OUTPUT
17
V8
HORZ. OUTPUT
3
FLY BACK GEN.
4
9
10
HO DE
FRAME GEN.
VERT. OSC.
VERT. OUTPUT
VIDEO IDENT.
8
7
VERT. DEFL.
R51
C15
R18
Vertical
TV

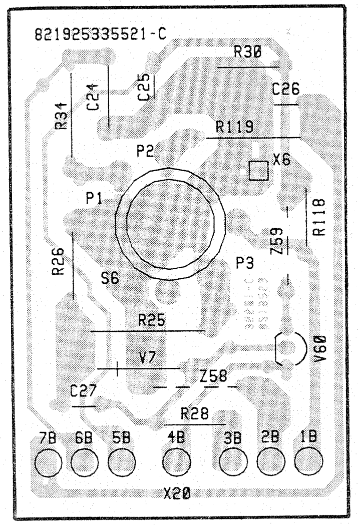
Block diagram

Block diagram

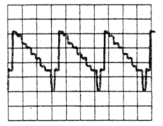

BLOCK DIAGRAM
A P6.3
Supply
POWER INPUT
T3 POWER X'FORMER
1) ,2)
3)
1) 115V
2) 240V
3) 220V
6
5
4
20
23
F1
X23 11V8-16V
F201
2AT
EXTERNAL DC INPUT
POWER SWITCH
VOLUME CONTROL R125
+15
V22,V23
+11
R20
+9V7
Audio
R38
+15
U2 TDA3190P
AUDIO DETECT
OUTPUT
1
8
16
15
11
1X32
16Ω
2X32
AUDIO IN
R125
POWER SWITCH
VOLUME
AUDIO OUT
Video
VIDEO OUT
S1
1 2 3
R126
220
VIDEO IN
C98
V62
CLAMP SYNC.TOP
V61
VIDEO AMPLIFIER
R35
VIDEO
CRT PCB
+109
V60
CRT DRIVER
HOR.+ VERT FLY BACK SUPP.
2
3
4
+11
CRT
+11 +109
5 6 7
+11
10kV
R117
Horizontal
VIDEO
+9V7
R17
TV
U9 TDA8215A
20
12
11
INPUT STAGE
φ
HOR OSC.
OUTPUT
17
3
FLY BACK GEN.
4
9
FRAME GEN.
VERT. OSC.
VERT. OUTPUT
10
VIDEO IDENT.
8
7
V8
HORZ. OUTPUT
HOR. DEFL.
VERT. DEFL.
C15
R18
TV
Vertical
EHT
V5
T1 LOT
2
EHT
5
1
6
+11
8
3
7
R51
V11
R50
VSS 4440
CL26532087/012.X001
070792

Wave forms and Print lay-out

CRT PANEL

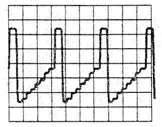

821925335521-C
R30
C24
C25
C26
R34
R119
P2
X6
P1
R118
R26
S6
P3
Z59
R25
V60
V7
C27
Z58
R28
7B 6B 5B 4B 3B 2B 1B
X20

③ EV61



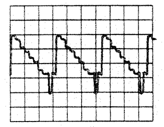
0,5 V/div AC
20 uS/div

④ CV60



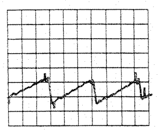
10 V/div AC
20 uS/div

⑤ 20U9



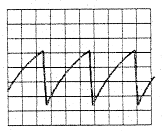
0,5 V/div AC
20 uS/div

⑥ 12U9



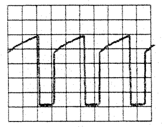
0,1 V/div AC
20 uS/div

⑦ 11U9



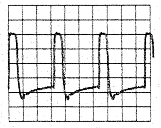
1 V/div AC
20 uS/div

⑧ 17U9



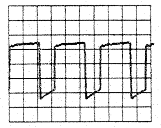
1 V/div AC
20 uS/div

⑨ 18U9



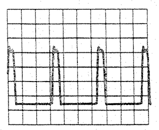
0,5 V/div AC
20 uS/div

⑩ BV8



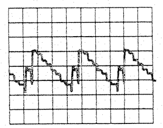
1 V/div AC
20 uS/div

⑪ CV8



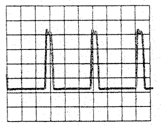
50 V/div AC
20 uS/div

⑫ 5AX20



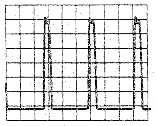
0,5 V/div AC
20 uS/div

⑬ 5T1



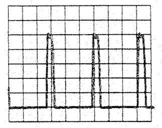
50 V/div AC
20 uS/div

⑭ 8T1



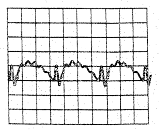
20 V/div AC
20 uS/div

⑮ 3T1



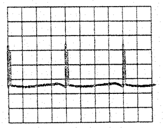
20 V/div AC
20 uS/div

⑯ 7T1



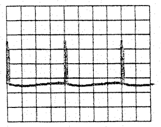
0,2 V/div AC
20 uS/div

⑰ 4U9



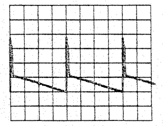
5 V/div AC
5 mS/div

⑱ 9U9



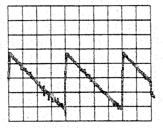
5 V/div AC
5 mS/div

⑲ 10U9



10 V/div AC
5 mS/div

⑳ 7U9

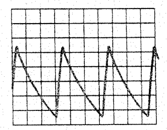


0,1 V/div AC
5 mS/div

㉑ 2U9

0,5 V/div AC
20 uS/div

㉒ 13U9

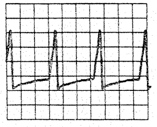


1 V/div AC
20 uS/div

㉓ 4X1

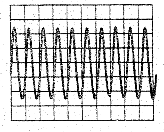
50 V/div AC
20 uS/div

㉔ 3X1



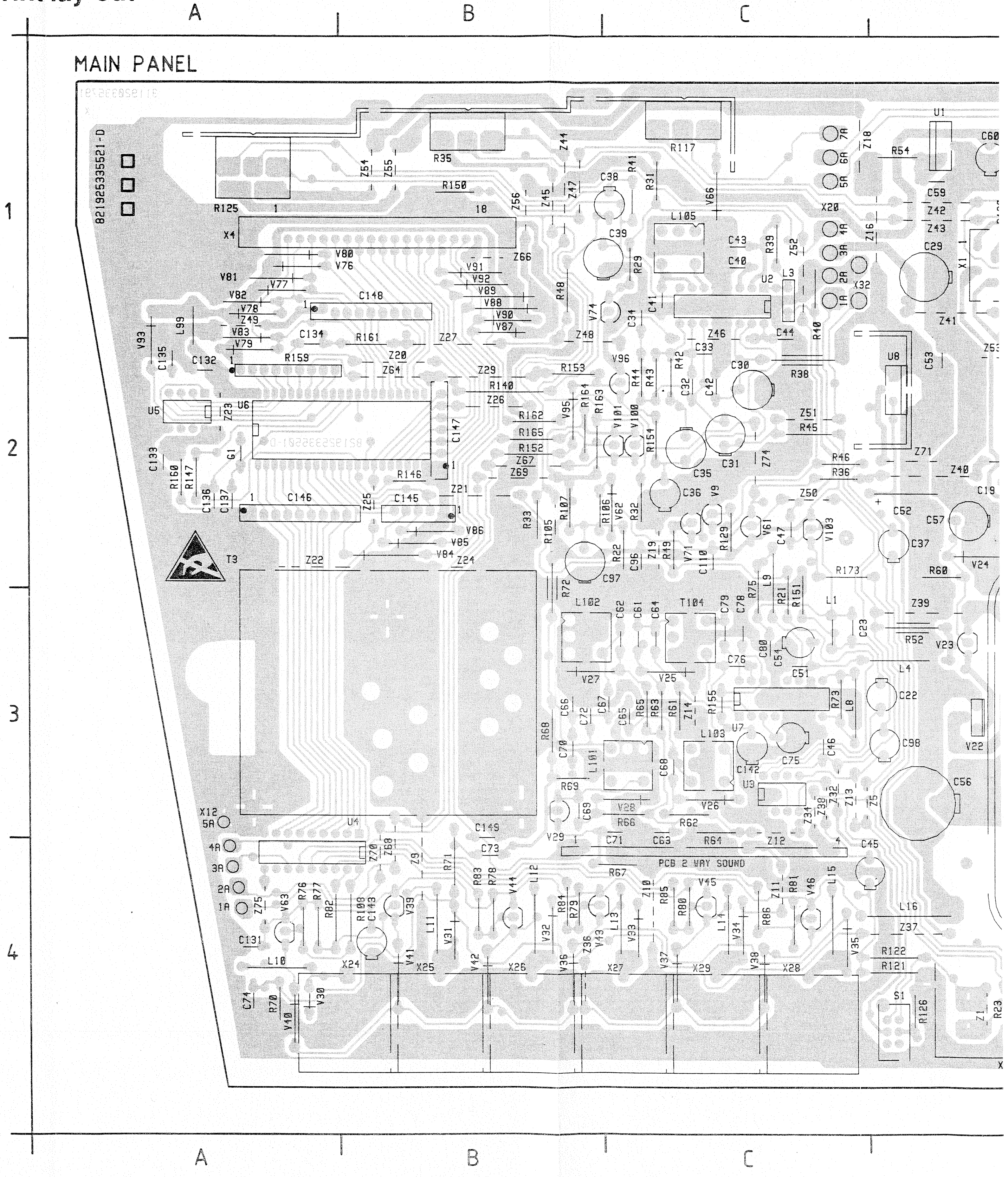
5 V/div AC
20 uS/div

㉕ 11U2

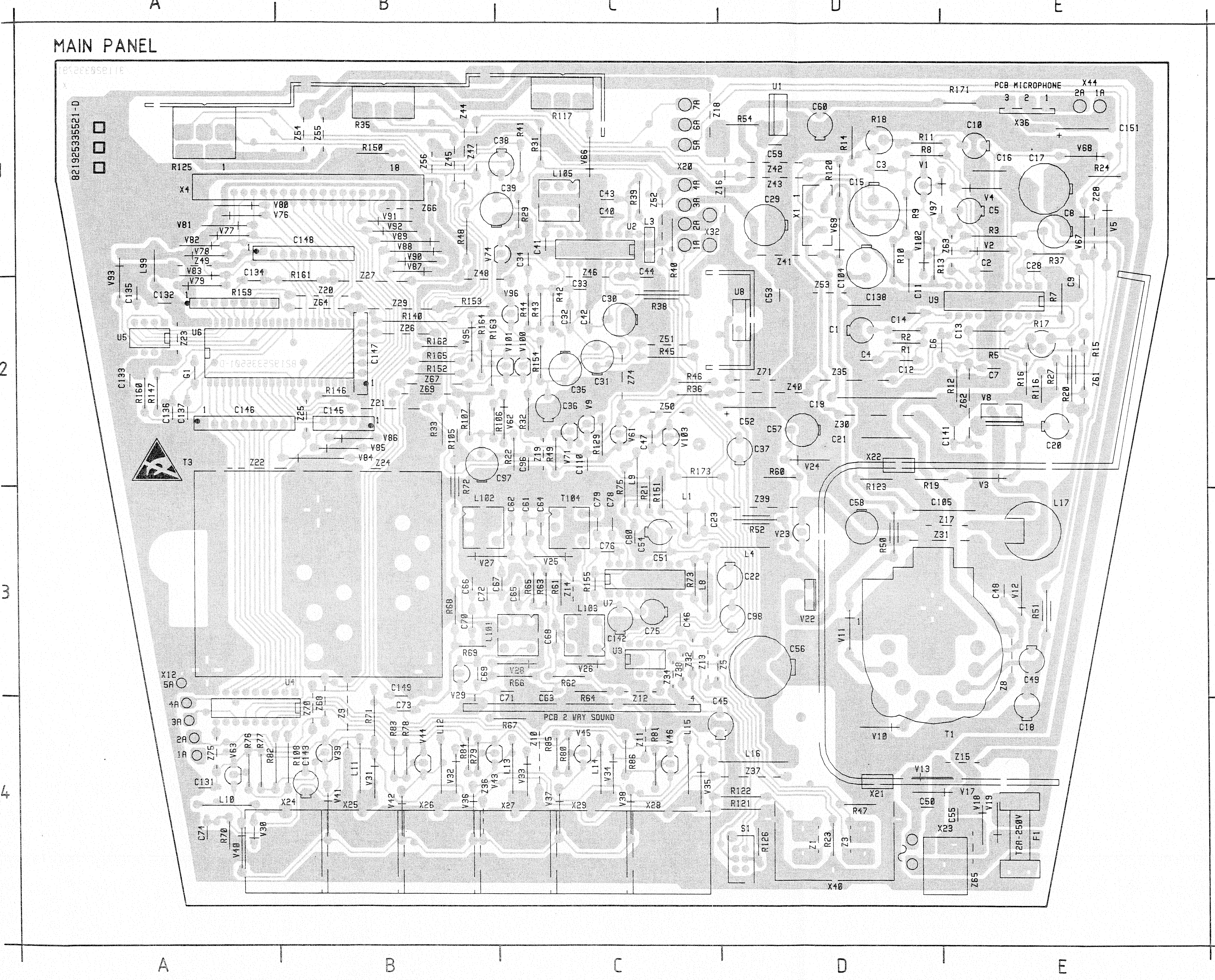


0,5 V/div AC
1 mS/div

Print lay-out

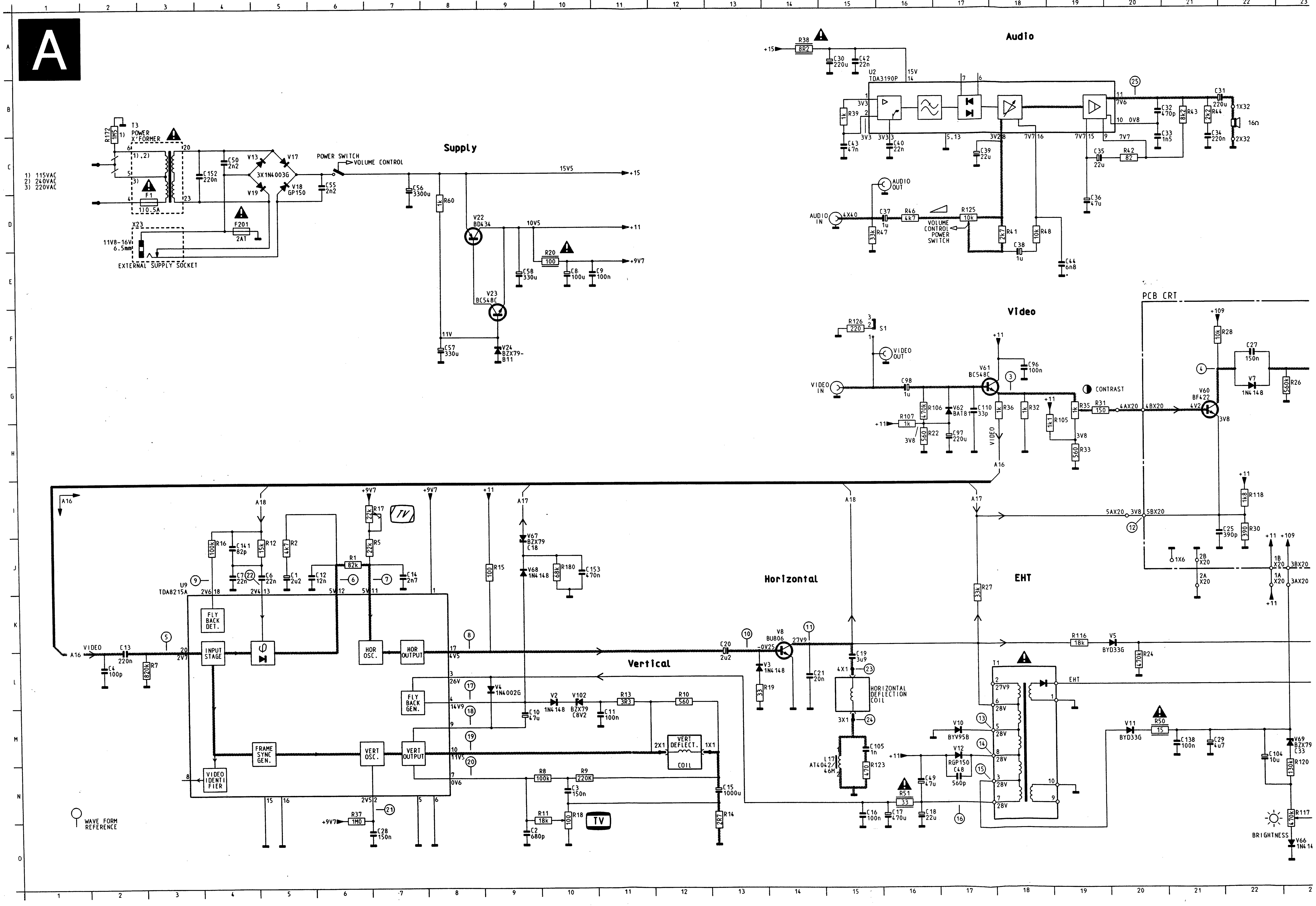

A
B
C
1
2
3
4
MAIN PANEL
821925335521-D
R125
X4
Z54
Z55
R35
R150
Z56
Z45
Z47
Z44
R41
C38
R31
R117
V66
L105
C39
R29
R40
C43
C40
R39
Z52
U2
L3
X20
7A
6A
5A
4A
3A
2A
1A
X32
Z18
R54
U1
C60
C59
Z42
Z43
C29
Z16
Z41
V80
V76
V81
V77
V82
V78
Z49
V83
V79
C148
C134
R161
V91
V92
V89
V88
V90
V87
Z66
Z27
Z48
V74
C34
C41
Z46
C33
C44
R40
U8
C53
V93
C135
R99
C132
R159
Z20
Z64
Z29
R140
Z26
R153
V96
R44
R43
R42
C32
C42
C30
R38
Z51
R45
U5
Z23
U6
C147
R162
R165
R152
Z67
Z69
R146
V95
R164
R163
V101
V100
R154
C35
C31
Z74
R46
R36
Z71
Z40
C133
G1
R160
R147
C136
C137
C146
Z25
C145
Z21
V86
V85
V84
Z24
R33
R105
R107
R106
V62
R32
C36
V9
Z50
V61
C47
V103
C52
C57
C37
C19
T3
Z22
R72
C97
R22
C96
Z19
R49
V71
C110
R129
R173
R60
V24
L102
C62
C61
C64
T104
C79
C78
R75
L9
R21
R151
L1
C23
Z39
R52
V23
V27
V25
C76
C80
C51
L4
C22
R68
C70
C72
C66
C67
C65
R65
R63
R61
Z14
R155
R73
L8
L101
C68
L103
U7
C142
C75
C46
C98
V22
R69
U3
C56
C69
V28
R66
V26
R62
Z31
Z30
Z32
Z13
Z5
X12
5A
4A
3A
2A
1A
U4
Z70
Z68
Z9
R71
C149
C73
V29
C71
C63
R64
Z12
C45
PCB 2 WAY SOUND
R67
Z75
V63
R76
R77
R82
R100
C143
V39
L11
V31
R83
R78
V44
L12
R84
R79
V32
Z10
R85
R80
V45
Z11
R81
V46
L15
L16
C131
L10
X24
V41
X25
V42
X26
V36
Z36
V43
L13
V33
X27
V37
L14
V34
X29
R86
V38
X28
V35
Z37
R122
R121
C74
R70
V10
V30
S1
R126
Z1
R23
X

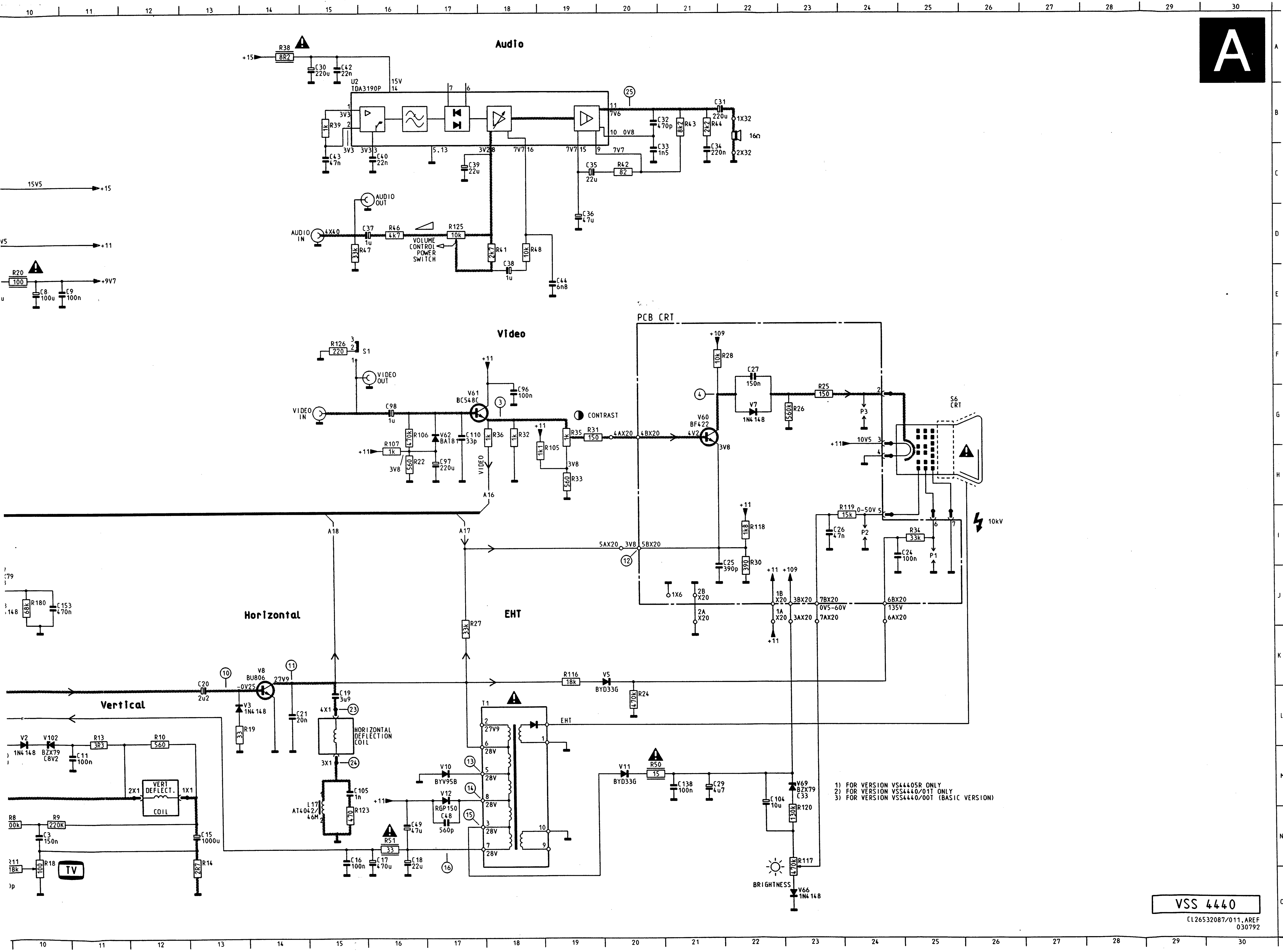
* See note 3 on page 3.1 (C153 and R180 are on cupperside).



C1	D2	F1	E4	R62	C3	V83	A1
C10	E1	G1	A2	R63	C3	V84	B2
C104	D2	L1	C3	R64	C4	V85	B2
C105	D3	L10	A4	R65	C3	V86	B2
C11	D2	L101	B3	R66	C3	V87	B1
C110	C2	L102	B3	R67	C4	V88	B1
C12	D2	L103	C3	R68	B3	V89	B1
C13	E2	L105	C1	R69	B3	V9	C2
C131	A4	L11	B4	R7	E2	V90	B1
C132	A2	L12	B4	R70	A4	V91	B1
C133	A2	L13	C4	R71	B4	V92	B1
C134	A1	L14	C4	R72	B2	V93	A1
C135	A2	L15	C4	R73	C3	V95	B2
C136	A2	L16	D4	R75	C2	V96	C2
C137	A2	L17	E3	R76	A4	V97	D1
C138	D2	L3	C1	R77	A4	X1	D1
C14	D2	L4	D3	R78	B4	X12	A3
C141	E2	L8	C3	R79	B4	X20	C1
C142	C3	L9	C2	R8	D1	X21	D4
C143	B4	L99	A1	R80	C4	X22	D2
C145	B2	R1	D2	R81	C4	X23	D4
C146	A2	R10	D1	R82	A4	X24	B4
C147	B2	R105	B2	R83	B4	X25	B4
C148	B1	R106	C2	R84	B4	X26	B4
C149	B3	R107	B2	R85	C4	X27	C4
C15	D1	R108	B4	R86	C4	X28	C4
C151	E1	R11	D1	R9	D1	X29	C4
C16	E1	R116	E2	S1	D4	X32	C1
C17	E1	R117	C1	T1	E4	X36	E1
C18	E4	R12	E2	T104	C3	X4	A1
C19	D2	R120	D1	T3	A2	X40	D4
C2	E1	R121	D4	U1	D1	X44	E1
C20	E2	R122	D4	U2	C1	Z1	D4
C21	D2	R123	D2	U3	C3	Z10	C4
C22	D3	R125	A1	U4	B3	Z11	C4
C23	C3	R126	D4	U5	A2	Z12	C4
C28	E1	R129	C2	U6	A2	Z13	C3
C29	D1	R13	D1	U7	C3	Z14	C3
C3	D1	R14	D1	U8	D1	Z15	E4
C30	C2	R140	B2	U9	D2	Z17	D3
C31	C2	R147	A2	V1	D1	Z18	C1
C32	C2	R149	C2	V10	D4	Z19	C2
C33	C2	R15	E2	V100	C2	Z20	B2
C34	C1	R150	B1	V101	C2	Z21	B2
C35	C2	R151	C3	V102	D1	Z22	A2
C36	C2	R152	B2	V103	C2	Z23	A2
C37	D2	R153	B2	V11	D3	Z24	B2
C38	C1	R154	C2	V12	E3	Z25	B2
C39	C1	R155	C3	V13	D4	Z26	B2
C4	D2	R159	A2	V17	E4	Z27	B2
C40	C1	R16	E2	V18	E4	Z28	E1
C41	C1	R160	A2	V19	E4	Z29	B2
C42	C2	R161	B2	V2	E1	Z3	D4
C43	C1	R162	B2	V22	D3	Z30	D2
C44	C1	R163	B2	V23	D3	Z31	D3
C45	C4	R164	B2	V24	D2	Z32	C3
C46	C3	R164	B2	V25	C3	Z34	C3
C47	C2	R165	B2	V26	C3	Z35	D2
C48	E3	R17	E2	V27	B3	Z36	B4
C49	E3	R171	E1	V28	C3	Z37	D4
C50	D4	R173	C2	V29	B4	Z38	C3
C51	C3	R18	D1	V3	E2	Z39	D3
C52	D2	R19	D2	V30	A4	Z40	D2
C53	D1	R2	D2	V31	B4	Z41	D1
C54	C3	R20	E2	V32	B4	Z42	D1
C56	D3	R21	C3	V33	C4	Z43	D1
C57	D2	R22	C2	V34	C4	Z44	B1
C58	D3	R23	D4	V37	C4	Z45	B1
C59	D1	R24	E1	V38	C4	Z46	C1
C6	D2	R27	E2	V39	B4	Z47	B1
C60	D1	R29	C1	V4	E1	Z48	B2
C61	C3	R3	E1	V40	A4	Z49	A1
C62	C3	R31	C1	V41	B4	Z5	D3
C63	C4	R32	C2	V42	B4	Z50	C2
C64	C3	R33	B2	V43	B4	Z51	C2
C65	C3	R35	B1	V44	B4	Z52	C1
C66	B3	R36	C2	V45	C4	Z53	D2
C67	B3	R37	E1	V46	C4	Z54	B1
C68	C3	R38	C2	V5	E1	Z55	B1
C69	B3	R39	C1	V61	C2	Z56	B1
C7	E2	R40	C1	V62	C2	Z61	E2
C70	B3	R41	C1	V63	A4	Z62	E2
C71	C4	R42	C2	V66	C1	Z64	B2
C72	B3	R43	C2	V67	E1	Z65	E4
C73	B4	R44	C2	V68	E1	Z66	B1
C74	A4	R45	C2	V69	D1	Z67	B2
C75	C3	R46	C2	V71	C2	Z68	B4
C76	C3	R47	D4	V74	B1	Z69	B2
C78	C3	R48	B1	V76	B1	Z70	B4
C79	C3	R5	E2	V77	A1	Z71	D2
C8	E1	R50	D3	V78	A1	Z74	C2
C80	C3	R51	E3	V79	A2	Z75	A4
C9	E2	R52	D3	V8	E2	Z8	E3
C96	C2	R54	D1	V80	B1	Z9	B4
C97	B2	R60	D2	V81	A1		
C98	D3	R61	C3	V82	A1		

* See note 3 on page 3.1 (C153 and R180 are on cupperside).


A
Supply
Audio
Video
Horizontal
Vertical
EHT
PCB CRT
T3 POWER X'FORMER
1) 115VAC
2) 240VAC
3) 220VAC
R172 1M5
F1 1) 0.5A
F201 2AT
X23
11V8-16V 6.5mm
EXTERNAL SUPPLY SOCKET
C152 220n
C50 2n2
V13
V17
3X1N4003G
V19
V18 GP150
C55 2n2
POWER SWITCH
VOLUME CONTROL
C56 3300u
R60 1k
15V5
+15
V22 BD434
10V5
+11
R20 100
+9V7
C58 330u
C8 100u
C9 100n
V23 BC548C
11V
C57 330u
V24 BZX79-B11
R38 8R2
C30 220u
C42 22n
U2 TDA3190P
15V
R39 1k
3V3
C43 47n
C40 22n
C39 22u
R41 2k7
R48 10k
C38 1u
C44 6n8
C32 470p
R43 8k2
R44 2k2
C31 220u
1X32
16Ω
2X32
C33 1n5
C34 220n
C35 22u
R42 82
C36 47u
7V6
0V8
7V7
3V2
AUDIO OUT
AUDIO IN
4X40
C37 1u
R46 4k7
R47 33k
R125 10k
VOLUME CONTROL POWER SWITCH
R126 220
S1
VIDEO OUT
VIDEO IN
C98 1u
V61 BC548C
C96 100n
R106 470k
V62 BA181
C110 33p
R36 1k
R32 1k
R107 1k
R22 560
C97 220u
3V8
R105 1k
R35 1k
R31 150
CONTRAST
R33 560
4AX20
4BX20
V60 BF422
4V2
R28 10k
+109
C27 150n
V7 1N4148
R26 560k
A16
A17
A18
R118 1k8
5AX20
5BX20
C25 390p
R30 390
1X6
2B X20
2A X20
1B X20
1A X20
3BX20
3AX20
U9 TDA8215A
R16 100k
C141 82p
R12 15k
R2 4k7
R17 22k
R5 22k
R1 82k
C7 22n
C6 22n
C1 2u2
C12 12n
C14 2n7
TV
FLY BACK DET.
INPUT STAGE
HOR OSC.
HOR OUTPUT
FLY BACK GEN.
FRAME SYNC GEN.
VERT OSC.
VERT OUTPUT
VIDEO IDENTIFIER
VIDEO
C13 220n
C4 100p
R7 820k
R15 100
V67 BZX79 C18
V68 1N4148
R180 68k
C153 470n
V4 1N4002G
C10 47u
V2 1N4148
V102 BZX79 C8V2
C11 100n
R13 3R3
R10 560
VERT DEFLECT. COIL
2X1
1X1
C15 1000u
R8 100k
R9 220K
C3 150n
R11 18k
R18 100
C2 680p
R14 2R7
R37 1M0
C28 150n
WAVE FORM REFERENCE
C20 2u2
V8 BU806
-0V25
27V9
V3 1N4148
R19 33
C21 20n
C19 3u9
4X1
HORIZONTAL DEFLECTION COIL
3X1
L17 AT4042/46M
C105 1n
R123 470
R27 33k
T1
R116 18k
V5 BYD33G
R24 470k
V10 BYV95B
V12 RGP150
C48 560p
C49 47u
R51 33
C16 100n
C17 470u
C18 22u
V11 BYD33G
R50 15
C138 100n
C29 4u7
C104 10u
R120 130k
V69 BZX79 C33
R117 470k
BRIGHTNESS
V66 1N414


A
Audio
R38 8R2
+15
C30 220u
C42 22n
U2 TDA3190P
15V 14
7
6
1
2
3V3
R39 1k
(25)
11 7V6
C31 220u
1X32
16Ω
2X32
C32 470p
R43 8k2
R44 2k2
C34 220n
10 0V8
C33 1n5
3V3 3V3 3
5.13
3V2 8
7V7 16
7V7 15
9 7V7
C43 47n
C40 22n
C39 22u
C35 22u
R42 82
C36 47u
AUDIO OUT
AUDIO IN
4X40
C37 1u
R46 4k7
R125 10k
VOLUME CONTROL POWER SWITCH
R47 33k
R41 2k7
R48 10k
C38 1u
C44 6n8
15V5
+15
+11
R20 100
+9V7
C8 100u
C9 100n
Video
R126 220
S1
VIDEO OUT
VIDEO IN
C98 1u
V61 BC548C
+11
C96 100n
(3)
R106 470k
V62 BAT81
C110 33p
R36 1k
R32 1k
R107 1k
+11
R22 560
3V8
C97 220u
VIDEO
A16
+11
R105 1k1
R35 1k
R31 150
3V8
R33 560
CONTRAST
4AX20
4BX20
PCB CRT
+109
R28 10k
C27 150n
(4)
V60 BF422
4V2
3V8
V7 1N4148
R25 150
R26 560k
P3
+11
10V5
S6 CRT
R119 15k
0-50V
C26 47n
P2
R34 33k
C24 100n
P1
10kV
+11
R118 1k8
C25 390p
R30 390
5AX20 3V8 5BX20
(12)
+11 +109
1X6
2B X20
2A X20
1B X20
1A X20
3BX20
3AX20
7BX20
0V5-60V
7AX20
6BX20
135V
6AX20
+11
A18
A17
Horizontal
EHT
R27 33k
R116 18k
V5 BYD33G
R24 470k
(10)
V8 BU806
-0V25
27V9
(11)
C20 2u2
V3 1N4148
R19 33
C21 20n
C19 3u9
4X1
(23)
HORIZONTAL DEFLECTION COIL
3X1
(24)
T1
EHT
27V9
28V
28V
28V
28V
28V
V10 BYV95B
V12 RGP150
C48 560p
(13)
(14)
(15)
+11
C105 1n
L17 AT4042/46M
R123 470
C49 47u
R51 33
C16 100n
C17 470u
C18 22u
(16)
V11 BYD33G
R50 15
C138 100n
C29 4u7
C104 10u
V69 BZX79 C33
R120 130k
R117 470k
BRIGHTNESS
V66 1N4148
Vertical
V2 1N4148
V102 BZX79 C8V2
R13 3R3
R10 560
C11 100n
2X1
VERT. DEFLECT. COIL
1X1
R8
R9 220k
C3 150n
C15 1000u
R11 18k
R18 100
R14 2R7
TV
R180 68k
C153 470n
VSS 4440
CL26532087/011,AREF
030792

1) FOR VERSION VS44405R ONLY
2) FOR VERSION VSS4440/01T ONLY
3) FOR VERSION VSS4440/00T (BASIC VERSION)

C1	J 5
C2	O 9
C3	N10
C4	L 2
C6	J 5
C7	J 4
C8	E10
C9	E11
C10	M 9
C11	M11
C12	J 6
C13	K 2
C14	J 7
C15	N13
C16	N15
C17	N16
C18	N16
C19	L15
C20	K13
C21	L14
C24	I25
C25	I22
C26	I23
C27	F22
C28	O 7
C29	M21
C30	A15
C31	B22
C32	B20
C33	C20
C34	C21
C35	C19
C36	D19
C37	D16
C38	E18
C39	C17
C40	C16
C42	A15
C43	C15
C44	E19
C48	N17
C49	N16
C50	C 4
C55	C 6
C56	C 7
C57	F 8
C58	E 9
C96	G18
C97	H17
C98	G16
C104	M22
C105	M15
C110	G17
C138	M21
C141	J 4
C152	C 4
C153	J10
F1	D 3
F201	D 4
L17	M15
R1	J 6
R2	J 5
R5	J 7
R7	L 3
R8	N10
R9	N10
R10	L12
R11	N10
R12	J 5
R13	L11
R14	N13
R15	J 9
R16	J 4
R17	I 7
R18	N10
R19	L13
R20	E10
R22	H16
R24	L20
R25	G23
R26	G23
R27	J17
R28	F22
R30	I22
R31	G19
R32	G18
R33	H19
R34	I25
R35	G19
R36	G18
R37	N 6
R38	A14
R39	B15
R41	D18
R42	C20
R43	B21
R46	D16
R47	D15
R48	D18
R50	M20
R51	N16
R60	D 8
R105	H19
R106	G16
R107	G16
R116	K19
R117	N23
R118	I22
R119	I24
R120	M23
R123	M15
R125	D17
R126	F15
R172	B 2
R180	J10
S1	F16
S6	G25
T1	L17
T3	B 2
U2	A15
U9	J 3
V2	L10
V3	L13
V4	L 9
V5	K20
V7	G22
V8	K14
V10	M17
V11	M20
V12	M17
V13	C 5
V17	C 5
V18	C 5
V19	C 5
V22	D 8
V23	E 9
V24	F 9
V60	G21
V61	G17
V62	G17
V66	O23
V67	J 9
V68	J 9
V69	M23
V102	L10
X23	D 2

7.1 VSS4440 Electrical instructions

1. General

- All controls in minimum position unless otherwise specified
- Test signal: From pattern generator, applied via capacitor of 4.7nF for DC blocking.

BASEBAND

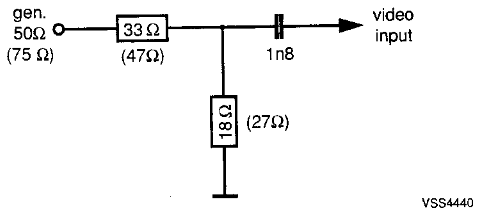

gen.
50Ω
(75 Ω)
33 Ω
(47Ω)
1n8
video input
18 Ω
(27Ω)
VSS4440
CL 26532115/013
290692

Fig. 7.1

2. Time base

2.1 Alignment set up

- Supply baseband signal of 625 lines (for -/00T/01T) and 525 lines (for -05R) from pattern generator to video input .
- Brightness control in mid position.
- Adjust R17 so that the picture on the CRT screen is straight.

2.2 Frame oscillator

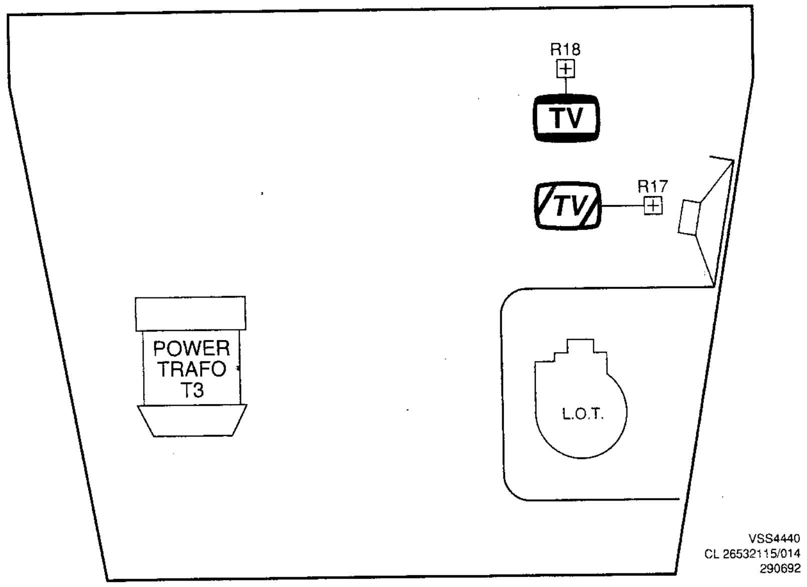
- Adjust the amplitude with R18 so that the circle pattern is symmetrical.

2.3 Picture geometry setting

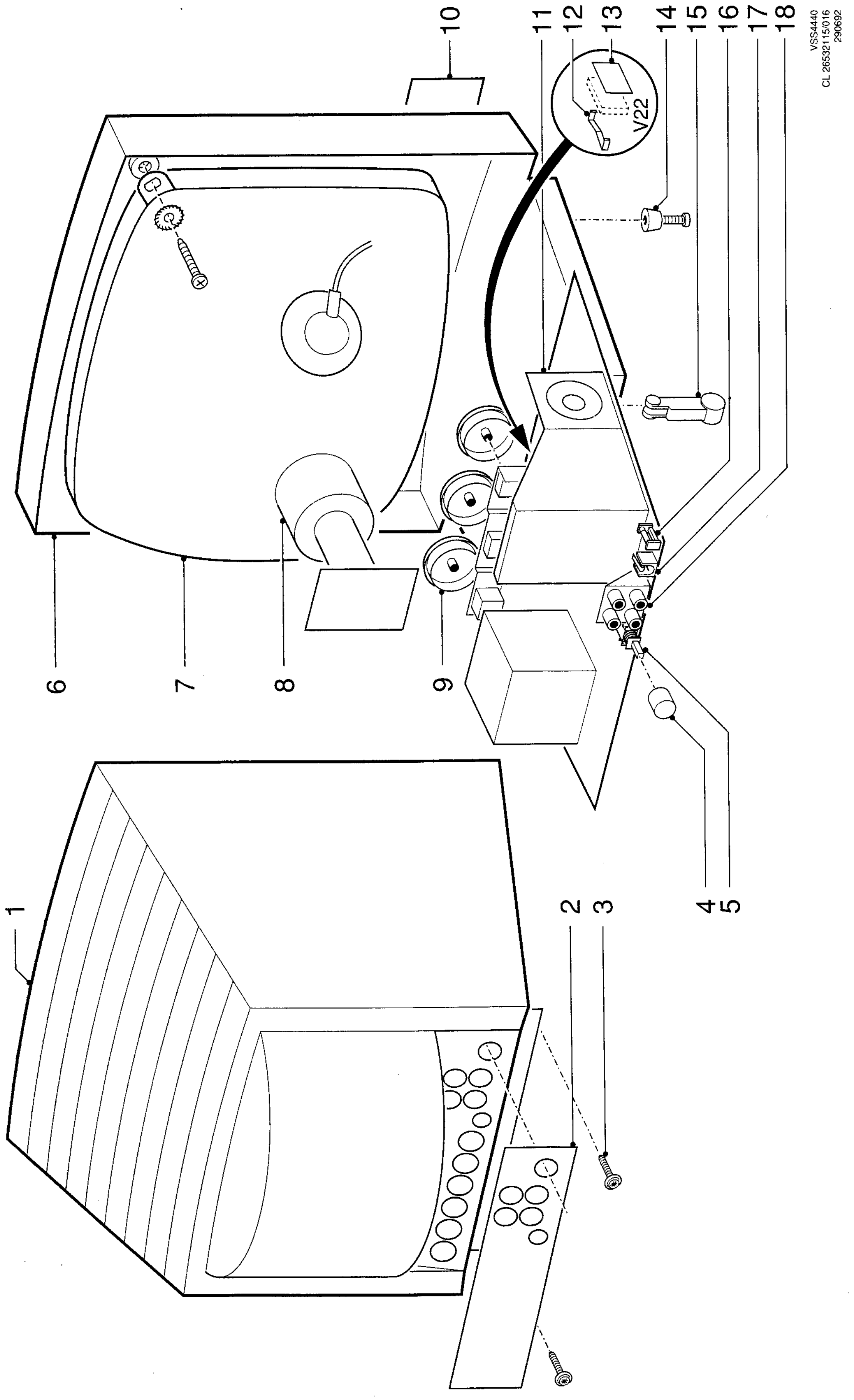
- Adjust the edges of the picture parallel to the edges of the mask by turning the deflection coil on the neck of the picture tube.
- Situate the picture symmetrically within mask, with help,of the centring magnets on the deflection unit.

LOCATION OF ADJUSTING COMPONENTS

MAIN PANEL (viewed from the component side)


R18
TV
TV
R17
POWER
TRAFO
T3
L.O.T.
VSS4440
CL 26532115/014
290692

Exploded view VSS4440 9.1


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
V22
VSS4440
CL 26532115/016
290692

10.1 VSS444

Mechanical p

VSS4440/00T/01T

1	4822 432 10
1	4822 432 10
2	4822 454 12
2	4822 454 12
3	4822 502 30
4	4822 410 61
4	4822 410 61
5	5322 277 21
6	4822 451 21
6	4822 451 11
7	4822 131 20
8	4822 150 10
9	4822 413 31
9	4822 413 31
10	4822 432 10
10	4822 432 10
11	4822 240 40
12	4822 255 40
13	4822 255 40
14	4822 462 41
15A	4822 462 41
15A	4822 462 41
15B	4822 462 41
15B	4822 462 41
16	4822 492 60
17	4822 265 20
18	4822 267 20
	4822 736 52
	4822 736 52

m

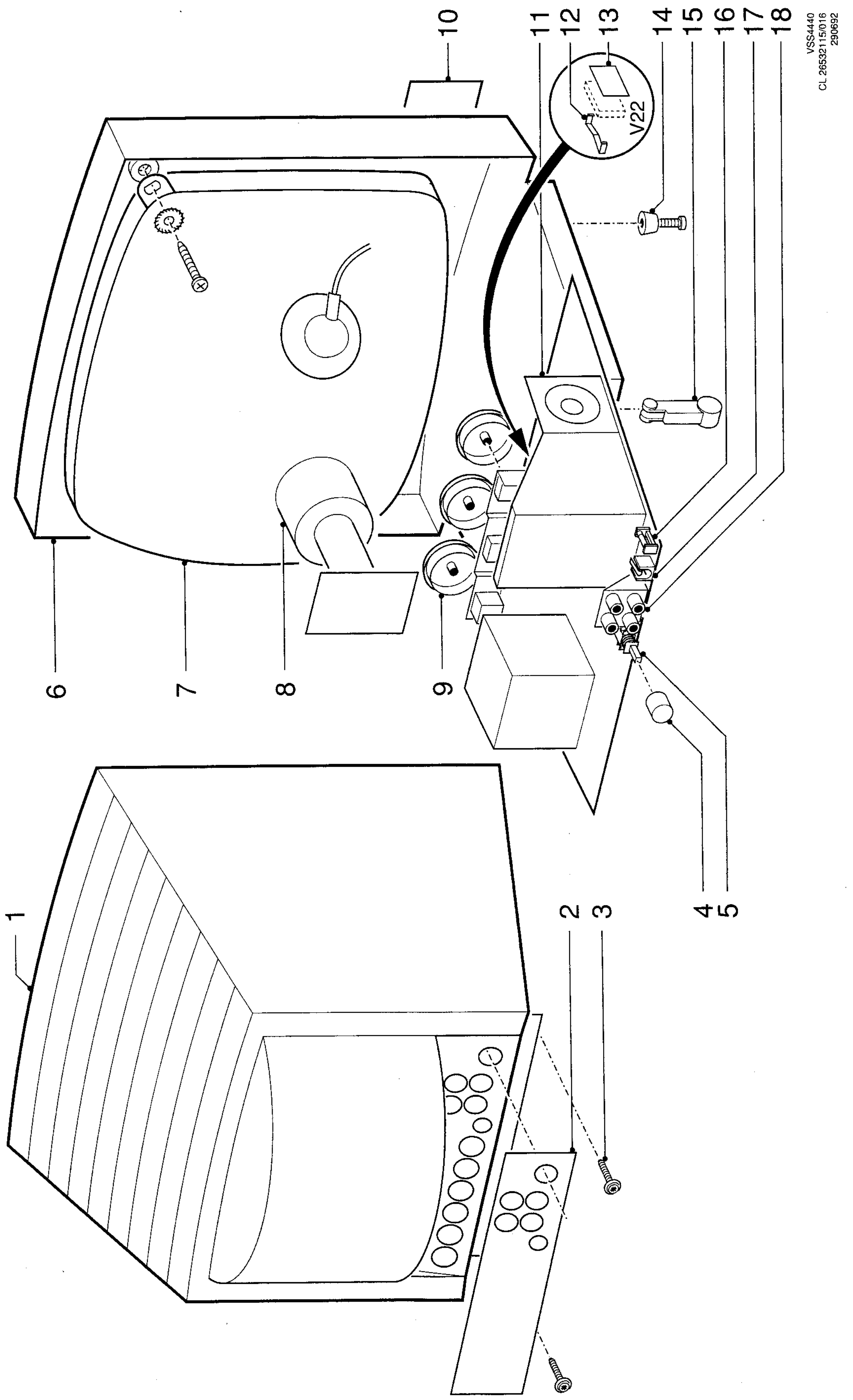
circle

the
n coil

ask,

Exploded view

VSS4440 **9.1**



10.1 **VSS4440**

Spare parts lists

Mechanical parts

VSS4440/00T/01T AND VS44405R

1	4822 432 10972	REAR COVER/..T
1	4822 432 10973	REAR COVER/..R
2	4822 454 12821	REAR TEXTPLATE/..T
2	4822 454 12823	REAR TEXTPLATE/..R
3	4822 502 30096	SCREW 3.5X19
4	4822 410 61891	PUSH BUTTON/..T
4	4822 410 61892	PUSH BUTTON/..R
5	5322 277 21222	SWITCH S1
6	4822 451 21042	FRONT MASK/..T
6	4822 451 11002	FRONT MASK/..R
7	4822 131 20473	PICTURE TUBE 12"
8	4822 150 10172	DEFLECTION UNIT
9	4822 413 31699	KNOB/..T
9	4822 413 31701	KNOB/..R
10	4822 432 10975	FRONT PANEL/..T
10	4822 432 10978	FRONT PANEL/..R
11	4822 240 40203	LOUDSPEAKER
12	4822 255 40128	SPRING CLIP
13	4822 255 40133	INSULATING PLATE
14	4822 462 41921	FOOT
15A	4822 462 41922	FOOT RIGHT/..T
15A	4822 462 41924	FOOT RIGHT/..R
15B	4822 462 41923	FOOT LEFT/..T
15B	4822 462 41925	FOOT LEFT/..R
16	4822 492 60063	SPRING FOR FUSE
17	4822 265 20259	DC SOCKET X23
18	4822 267 20284	RCA JACK X40
	4822 736 52915	D.F.U. VSS4440
	4822 736 52916	D.F.U. VS44405R

Electrical parts

Miscellaneous

F001	4822 253 50143	FUSE T 500MA /05
F201	5322 253 30368	FUSE T 2A
S501	5322 277 21222	SWITCH CH3/CH4

Transformers

T001	4822 140 10439	EHT TRAFO
T003	4822 146 21666	MAINS TRAFO /00/01
T003	4822 146 21665	MAINS TRAFO /05
T003	4822 146 21665	MAINS TRAFO /05

Coils

L017	4822 157 63909	LINEARITY CORRECTOR

⊣⊢

C001	4822 124 40244	2µF2 63V
C002	5322 122 32052	680pF 10% 100V
C003	5322 121 42925	150nF 10% 100V
C004	4822 122 31316	100pF 100V
C006	4822 121 41922	22nF 10% 250V
C007	4822 121 41922	22nF 10% 250V
C008	4822 124 40207	100µF 25V
C009	4822 126 12158	100nF 100V
C010	4822 124 40433	47µF 25V
C011	4822 121 41672	100nF 10% 100V
C012	4822 121 42766	12nF 10% 400V
C013	4822 121 41673	220nF 10% 100V
C014	4822 121 42937	2nF7 2% 250V
C015	4822 124 40184	1000µF 10V
C016	4822 121 41672	100nF 10% 100V
C017	4822 124 40646	470µF 40V
C018	4822 124 40804	22µF 40V
C019	4822 121 41893	3µF9 10% 100V
C020	4822 124 40244	2µF2 63V
C021	4822 121 70111	20nF 5% 630V
C024	4822 121 41689	100nF 10% 250V
C025	5322 122 32799	390pF 10% 100V
C026	4822 121 41984	47nF 10% 100V
C027	5322 121 42925	150nF 10% 100V
C028	5322 121 42925	150nF 10% 100V
C029	4822 124 80143	4µF7 200V
C030	4822 124 41393	220µF 25V
C031	4822 124 41393	220µF 25V
C032	5322 122 32311	470pF 10% 100V
C033	5322 122 32332	1nF5 10% 100V
C034	4822 121 41673	220nF 10% 100V
C035	4822 124 40804	22µF 63V
C036	4822 124 40433	47µF 25V
C037	4822 124 40242	1µF 63V
C038	4822 124 40242	1µF 63V
C039	4822 124 40804	22µF 63V

⊣⊢

C040	4822 122 30103	22nF -20+80% 63V
C042	4822 122 30103	22nF -20+80% 63V
C043	4822 126 12159	47nF 100V
C044	4822 122 31429	6nF8 -20+80% 100V
C048	4822 122 40112	560pF 10% 500V
C049	4822 124 40433	47µF 25V
C050	5322 122 32818	2nF2 10% 100V
C055	5322 122 32818	2nF2 10% 100V
C056	4822 124 40785	3300µF 25V
C057	4822 124 40849	330µF 25V
C058	4822 124 40849	330µF 25V
C096	4822 126 12158	100nF 100V
C097	4822 124 40181	220µF 10V
C098	4822 124 40242	1µF 63V
C104	4822 124 41833	10µF 20% 160V
C105	4822 121 43066	1nF 5% 400V
C110	5322 122 32072	33pF 100V
C138	4822 121 41689	100nF 10% 250V
C141	4822 122 31237	82pF 100V
C152	5322 121 42025	220nF 10% 250V
C153	4822 121 51252	470nF 5% 63V

-▭-

R001	4822 116 52304	82kΩ 5% 0.5W
R002	4822 116 52283	4kΩ7 5% 0.5W
R005	4822 116 52257	22kΩ 5% 0.5W
R007	4822 050 18204	820kΩ 5% 0.5W
R008	4822 116 52234	100kΩ 5% 0.5W
R009	4822 116 52258	220kΩ 5% 0.5W
R010	4822 116 52226	560Ω 5% 0.5W
R011	4822 116 52251	18kΩ 5% 0.5W
R012	4822 116 52244	15kΩ 5% 0.5W
R013	5322 116 53564	3Ω3 5% 0.5W
R014	4822 116 81844	2Ω7 5% 0.5W
R015	4822 053 11101	100Ω 5% 1.6W
R016	4822 116 52234	100kΩ 5% 0.5W
R017	4822 100 11873	TRIMPOTM. 22kΩ 20%
R018	4822 100 20857	TRIMPOTM. 100Ω 20%
R019	4822 116 52191	33Ω 5% 0.5W
R020	4822 052 10101	100Ω 5% 0.33W NFR25
R022	4822 116 52226	560Ω 5% 0.5W
R024	4822 050 14704	470kΩ 5% 0.5W
R025	4822 116 83703	150Ω 10%
R026	4822 116 52292	560kΩ 5% 0.5W
R027	4822 116 52271	33kΩ 5% 0.5W
R028	4822 116 52233	10kΩ 5% 0.5W
R030	4822 116 52222	390Ω 5% 0.5W
R031	4822 116 52211	150Ω 5% 0.5W
R032	4822 050 11002	1kΩ 5% 0.5W
R033	4822 116 52226	560Ω 5% 0.5W
R034	4822 116 52271	33kΩ 5% 0.5W

Spare parts lists

Electrical parts

R035	4822 100 20858	1kΩ POTMETER
R036	4822 050 11002	1kΩ 5% 0.5W
R037	4822 116 52235	1MΩ 5% 0.5W
R038	4822 052 10828	8Ω2 5% 0.33W NFR25
R039	4822 050 11002	1kΩ 5% 0.5W
R041	4822 116 52263	2kΩ7 5% 0.5W
R042	4822 050 28209	82Ω 5% 0.5W
R043	4822 116 52303	8kΩ2 5% 0.5W
R044	4822 116 81154	2Ω2 5% 0.5W
R046	4822 116 52283	4kΩ7 5% 0.5W
R047	4822 116 52271	33kΩ 5% 0.5W
R048	4822 116 52233	10kΩ 5% 0.5W
R050	4822 052 10159	15Ω 5% NFR25
R051	4822 052 11339	33Ω 5% 0.5W NFR25
R060	4822 050 11002	1kΩ 5% 0.5W
R105	4822 116 52205	1kΩ1 5% 0.5W
R106	4822 050 14704	470kΩ 5% 0.5W
R107	4822 050 11002	1kΩ 5% 0.5W
R116	4822 116 52251	18kΩ 5% 0.5W
R117	4822 100 20859	470kΩ POT. METER
R118	4822 116 52249	1kΩ8 5% 0.5W
R119	4822 116 52244	15kΩ 5% 0.5W
R120	4822 050 11304	130kΩ 5% 0.5W
R123	4822 116 52224	470Ω 5% 0.5W
R125	4822 100 90103	10kΩ POTM.+SWITCH
R126	4822 116 52215	220Ω 5% 0.5W
R172	4822 111 50603	1MΩ5 10% 0.5W /05
R180	4822 161 52297	68kΩ 5% 0.5W

U002	4822 209 81194	TDA3190P
U009	4822 209 31254	TDA8215A

V002	4822 130 30621	1N4148
V003	4822 130 30621	1N4148
V004	5322 130 30684	1N4002G
V005	4822 130 42489	BYD33G
V007	4822 130 30621	1N4148
V008	5322 130 60135	BU806
V010	4822 130 41486	BYV95B
V011	4822 130 42489	BYD33G
V012	5322 130 31971	RGP15D
V013	4822 130 31878	1N4003G
V017	4822 130 31878	1N4003G
V018	4822 130 31173	GP15D
V019	4822 130 31878	1N4003G
V022	4822 130 40995	BD434
V023	4822 130 44196	BC548C
V024	4822 130 34488	BZX79-B11
V060	4822 130 41782	BF422
V061	4822 130 44196	BC548C
V062	5322 130 80617	BAT8
V066	4822 130 30621	1N4148
V067	4822 130 31024	BZX79-C18
V068	4822 130 30621	1N4148
V069	4822 130 34142	BZX79-C33
V102	4822 130 34382	BZX79-C8V2

Connectors

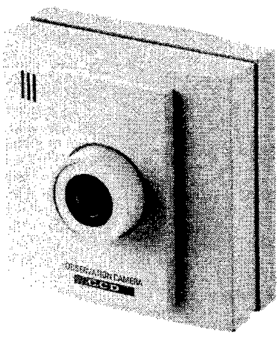
X001	4822 265 30378	SOCKET 4P
X015	4822 492 60063	SPRING FOR FUSE
X016	4822 492 60063	SPRING FOR FUSE
X023	4822 265 20259	DC SOCKET EXT. SUPPLY
X040	4822 267 20284	RCA JACK
X506	5322 255 70224	CRT SOCKET

V14757

B/W CCD Observation Camera

VCM8120
/00T/01T
VC81205R

Service
Service
Service



Service Manual

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INTRODUCTION

This CCD Observation Camera is a black and white videocamera with a built-in electret microphone, a fixed focus lens and an RF output in TV band I (channel 3 or 4).
It is designed to work in a system with maximum 6 cameras together with a special B/W monitor.
The operating power for the camera is supplied via the coaxial cable.

The camera is suitable for limited outdoor use.
It is backwards compatible with both vidicon camera VK4902 and CCD camera CCD806/812.

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PCS 43 196

2.1 VCM8120

TECHNICAL DATA

Supply voltage	: 9.8 - 16 Volts DC
Supply current operation	: 100 mA at 12 V. DC
stand-by	: <10 mA at 4 V. DC
Warming up time	: < 0.8 sec.
Ambient temperature	: -20°C to +55°C.
Relative humidity	: 20% - 90%
Pick-up element	: 1/3" Interline CCD VCM8120/00T/01T: LZ2324 VC81205R : LZ2314
Number of pixels	: LZ2324 : 512(H) x 582(V) LZ2314 : 512(H) x 492(V)
Horizontal resolution	: >340 TV lines in the centre
Illumination range	: 1 to 25000 Lux.
Signal to noise ratio	: >48 dB (illum.level >100 lux).
Modulated RF output	: Channel 3 or 4 (selectable)
Modulator system	: VCM8120/00T CCIR-B VCM8120/01T CCIR-I VC81205R EIA
Microphone	: built-in electret
Lens	: fixed 3.65 mm F2.0
Focusability	: fixed 1m-infinity
Tripod fixation	: 1/4" BSW.
Dimensions	: 70(W) x 70(H) x 54(D)

WARNINGS

1. **NEVER measure directly at the output of the CCD image sensor. It will destroy the sensor immediately. Always measure behind buffer 7196.**

2. Safety regulations require that the set is resored to its original condition and that components identical to the original types be used.

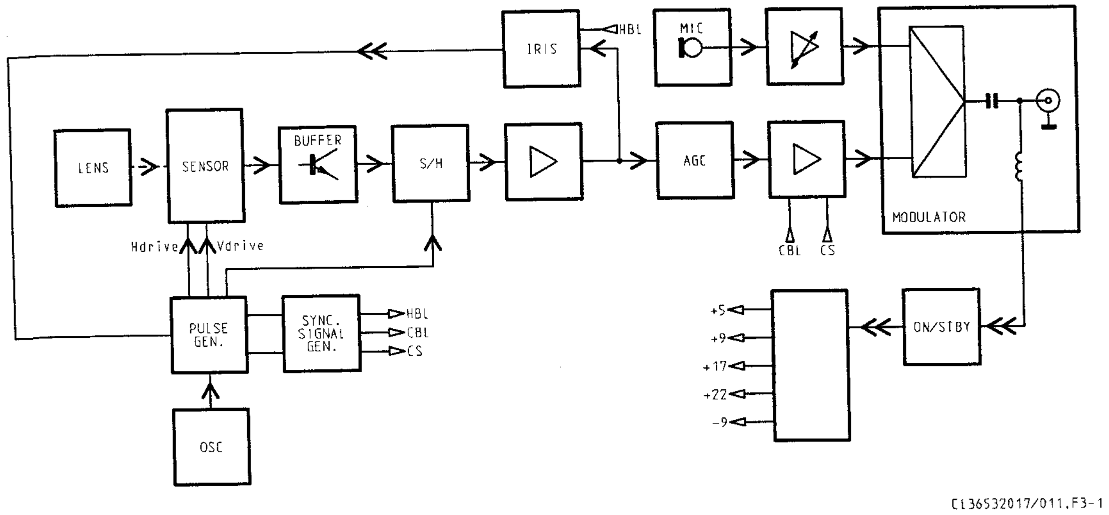
3. All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can destroy them or reduce their lifetime drasticaly. When repairing, make sure that you are connected to the same potential as the mass of the set. Also keep tools at that potential.

4. Always switch the set off before replacing any of the components or separating the PCboards.

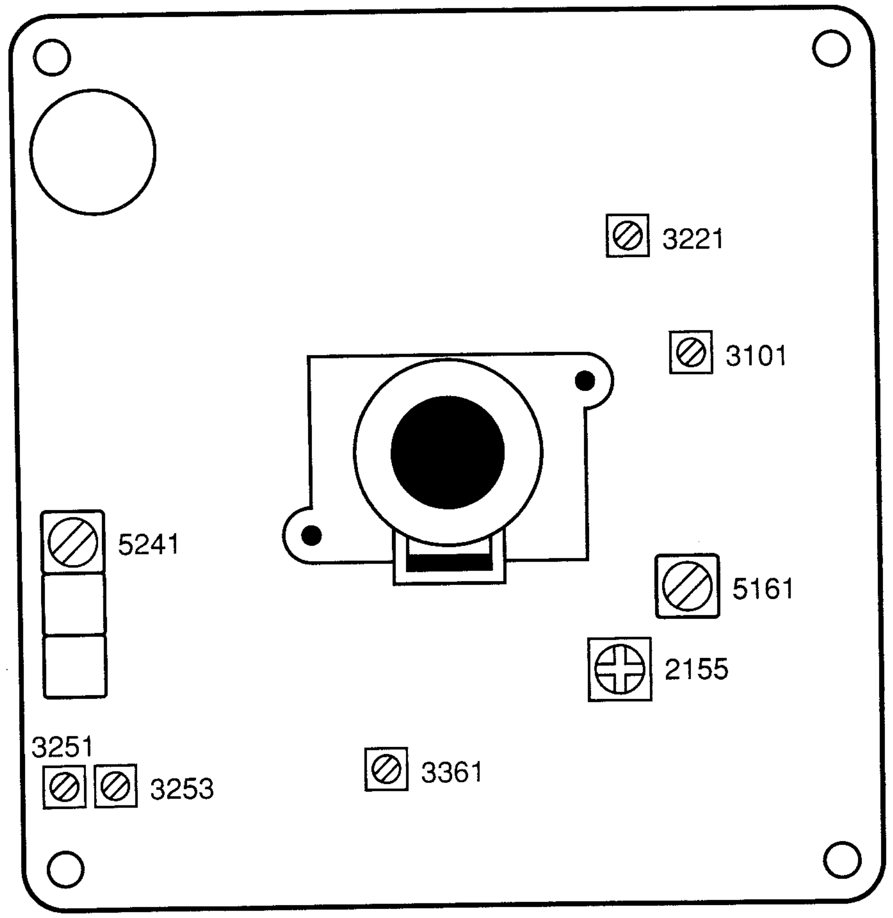
REMARKS

1. The values of resistors and capacitors are given without decimal point. e.g.3k9. Please read 3.9k.

BLOCKDIAGRAM



LOCATION OF ADJUSTMENT CONTROLS



VCM8120
CL 16532036/026
060891

SERVICE ADJUSTMENTS

USED EQUIPMENT:

-Dual trace oscilloscope(30MHz) PM3262
-Automatic multimeter PM2519
-Frequency counter PM6673
-Service lightbox 4822 397 30064
-Test circle slide 4822 397 30065
-Grey scale slide 4822 397 10045
-V/10 chart. (Black paper with a hole
 of approximately 1x1 cm in the middle)
-Suitable monitor with power supply.

ADJUSTMENT ANTI-BLOOMING (OFD):

Connect the multimeter to testpoint 1216 and adjust 3221 (OFD) for 8V reading.

ADJUSTMENT PIXELFREQUENCY:

Connect the frequency counter to testpoint 1141. Adjust 2159 (trim capacitor clock oscillator) for a reading of:
9.534964 MHz for VC81205R.
9.656250 MHz for VCM8120/00T and VCM8120/01T.
When the frequency adjustment can not be reached with 2159, then slightly change adjustment of coil 5161.

ADJUSTMENT SHUTTERSPEED:

Point the camera to the light box. Place the test circle slide in the light box. Connect the oscilloscope to pin 6 of IC 7230. Set the oscilloscope to: 100mV/div and 20μs/div.
Reduce the supply voltage for the lightbox to 7 Volts. Cover the lens for a moment and determine the black level of the iris output signal. Adjust 3101 (shutterspeed) so that the amplitude of the video signal is just 800mV peak-peak. Increase the supply voltage for the lightbox to 12 Volts and see whether the monitor video signal level on oscilloscope does not change in amplitude.

ADJUSTMENT AGC:

Point the camera to the test circle slide. Reduce the supply voltage for the lightbox to approx. 5 Volts. Connect the oscilloscope to the video output on testpoint TP1281. Settings of the oscilloscope 200mV/div and 20μs/div. Adjust 3261 (AGC) so that output level is 1Vp-p.

ADJUSTMENT SET-UP:

Beware of false incoming light.!!!
Point camera to the test circle slide. Set the supply voltage of the lightbox to 11 Volts. Connect the oscilloscope to the video output signal on TP1281. Adjust with 3253 the set-up level: 50mV for VC81205R and 0mV for VCM8120/00T and /01T.

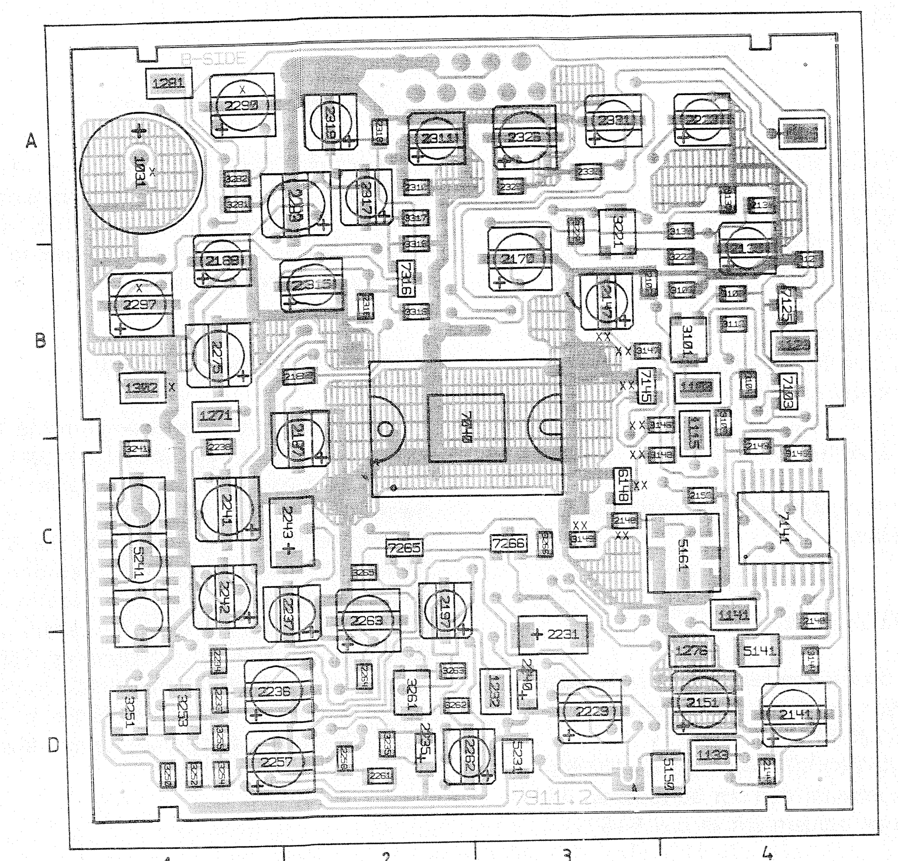
ADJUSTMENT WHITE-CLIP:

Connect pin 25 of 7230 to ground (AGC off). Point the camera to a small white spot. Connect the oscilloscope to the video output signal at TP1281 and adjust 3251 (white clip) so that the video signal level does not exceed 1.1V peak-peak.

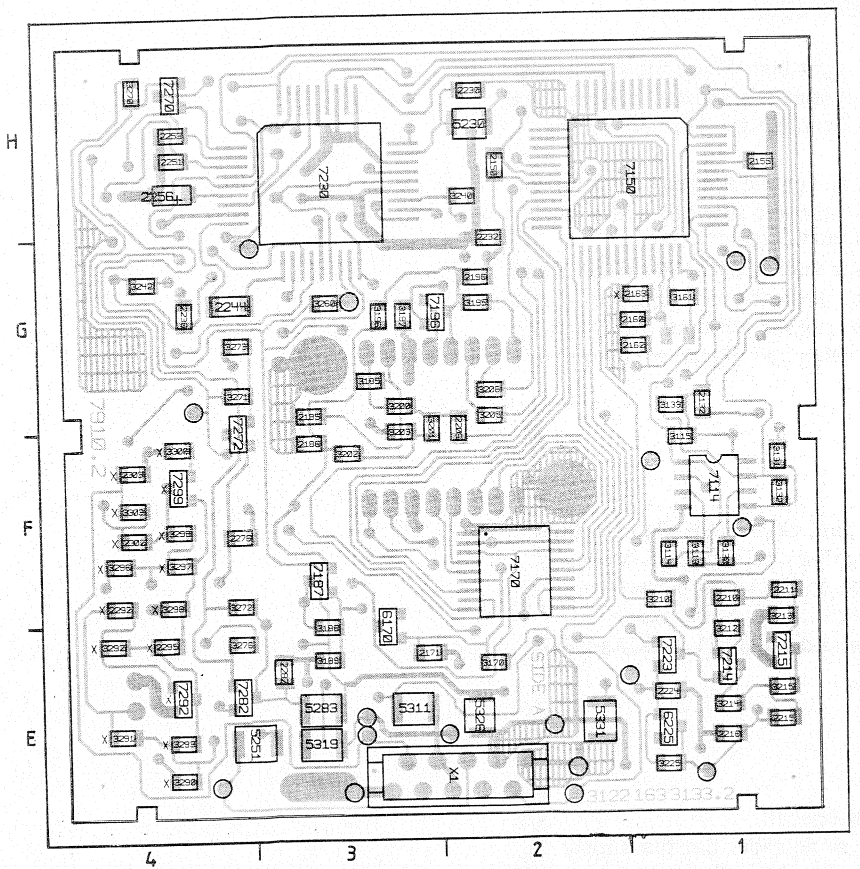
CHECK ANTI-BLOOMING LEVEL:

Point camera to the lightbox with the V/10 chart. Place a ND-filter with a value of 3.0 in front of the lens. Connect an oscilloscope to testpoint 1232.
Settings: 50mV/div, 20μs/div.
Adjust the light intensity so that the CCD sensor signal level is 150mV at the square. Remove the ND-filter and check for Anti-blooming (this effect is best seen in differences in smearing). If necessary re-adjust 3221 (OFD) so that smearing disappears. Then remove the slide from the lightbox and check on monitor whether Light Fixed Pattern Noise is visible, if so then re-adjust 3221 (OFD) to a somewhat lower value.

WIRING DIAGRAM PROCESSING PANEL



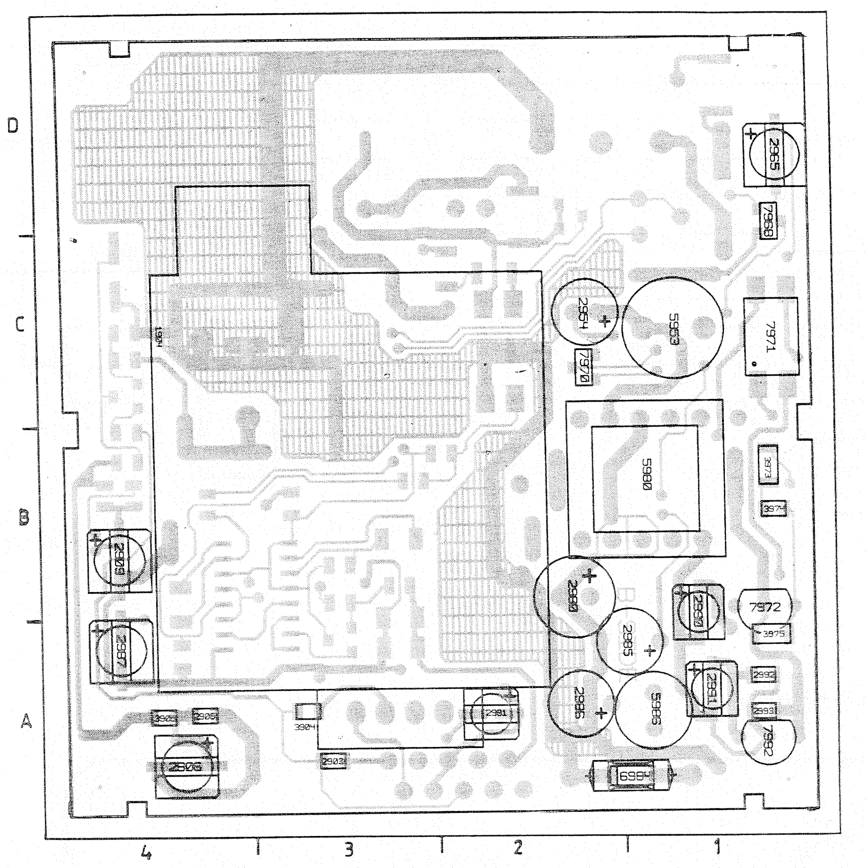
Component side



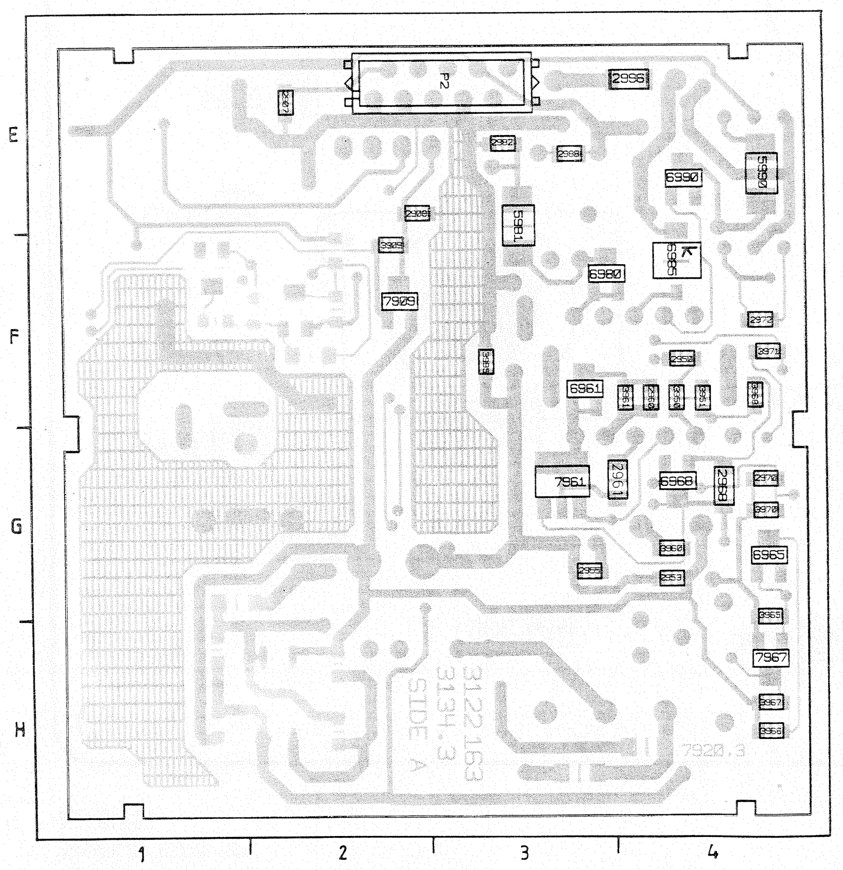
Solder side

NOTE: This lay-out is applicable for both VCM81 & VCM61.
Thus, some components mentioned **may not** be present on the panels

1031	A1	3136	B4
1103	B4	3137	A4
1115	C4	3143	C4
1123	B4	3144	D4
1133	D4	3145	B3
1141	C4	3146	C4
1216	A4	3147	B3
1232	D3	3149	C3
1271	B1	3161	G1
1276	D4	3170	E2
1281	A1	3185	G3
1302	B1	3188	E3
2102	B3	3189	E3
2132	G1	3195	G2
2135	B4	3196	G3
2136	A4	3197	G3
2140	C4	3200	G3
2141	D4	3201	G3
2143	C4	3202	F3
2144	D4	3203	F3
2147	B3	3205	G2
2148	C3	3206	G2
2150	H2	3210	F1
2151	D4	3212	E1
2155	H1	3213	F1
2156	C4	3214	E1
2160	G2	3215	E1
2162	G2	3220	A3
2163	G2	3221	A3
2170	A3	3222	B4
2171	E3	3225	E1
2180	B2	3235	D2
2185	G3	3240	H2
2186	F3	3241	C1
2187	B2	3250	D1
2188	A1	3251	D1
2196	G2	3252	D1
2197	C2	3253	D1
2206	F2	3254	D1
2210	F1	3255	D1
2211	F1	3260	G3
2215	E1	3261	D2
2216	E1	3262	D2
2223	A4	3263	D2
2224	E1	3265	C2
2229	D3	3266	C3
2230	H2	3270	H4
2231	D3	3271	G4
2232	G2	3272	F4
2233	D1	3273	G4
2234	D1	3276	E4
2235	D2	3281	A1
2236	D1	3282	A1
2237	C2	3290	E4
2238	C1	3291	E4
2239	G4	3292	E4
2240	D3	3293	E4
2241	C1	3296	F4
2242	C1	3297	F4
2243	C1	3298	F4
2244	G4	3299	F4
2251	H4	3300	F4
2253	H4	3303	F4
2256	H4	3316	B2
2257	D1	3317	A2
2258	D2	3318	B2
2261	D2	5141	D4
2262	D2	5150	D4
2263	C2	5161	C4
2264	D2	5230	H2
2275	B1	5231	D3
2276	F4	5241	C1
2282	E3	5251	E1
2283	A2	5283	E3
2290	A1	5311	E3
2292	F4	5319	E3
2295	E4	5326	E2
2297	B1	5331	E2
2302	F4	6148	C3
2303	F4	6170	E3
2310	A2	6225	E1
2311	A2	7040	C2
2315	B2	7103	B4
2316	B2	7114	F1
2317	A2	7125	B4
2318	A2	7141	C4
2319	A2	7145	B4
2325	A3	7150	H1
2326	A3	7170	F2
2330	A3	7187	F3
2331	A3	7196	G2
3100	B4	7214	E1
3101	B4	7215	E1
3102	B4	7223	E1
3104	B4	7230	H3
3105	B4	7265	C2
3112	B4	7266	C3
3113	F1	7270	H4
3114	F1	7272	F4
3115	F1	7282	E4
3123	F1	7292	E4
3124	F1	7299	F4
3125	B4	7316	B2
3130	F1		
3131	F1		
3132	F1		
3133	G1		



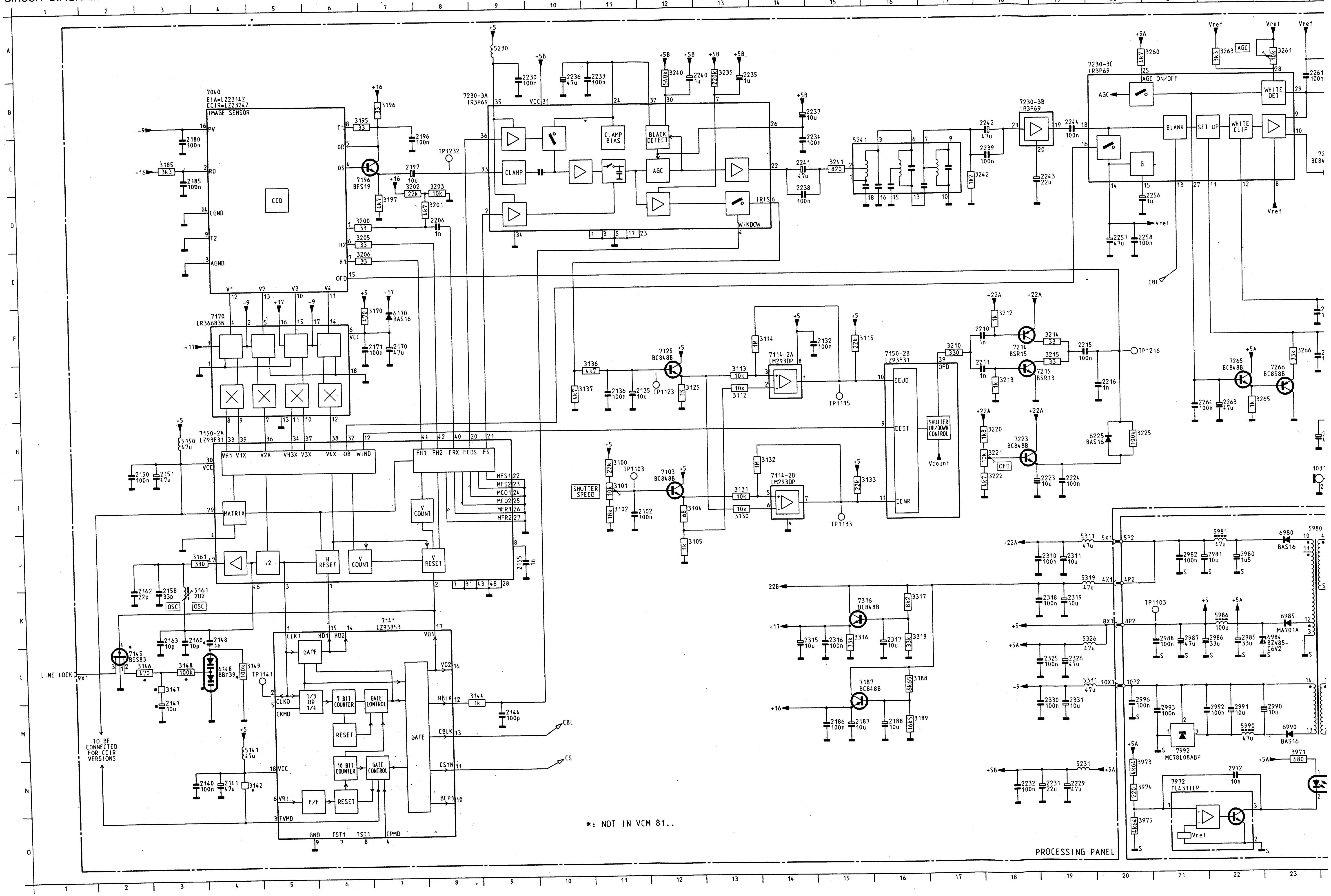
Component side



Solder side

NOTE: 7972 and 7992 have to be bent away.

1904	C2
2903	A3
2905	A4
2906	A4
2907	E2
2908	E2
2909	B4
2950	F4
2953	G4
2954	C2
2955	G3
2960	F4
2961	G3
2965	D1
2968	G4
2970	G4
2972	F4
2980	A2
2981	A2
2982	E3
2985	A1
2986	A2
2987	A4
2988	E3
2990	A1
2991	A1
2992	A1
2993	A1
2996	E4
3904	A3
3905	A4
3950	F4
3951	F4
3960	G4
3961	F3
3965	G4
3966	H4
3967	H4
3968	F4
3970	G4
3971	F4
3973	B1
3974	B1
3975	A1
3995	F3
5953	C1
5980	C1
5981	E3
5986	A1
5990	E4
6961	F3
6965	G4
6968	G4
6980	F3
6985	F4
6990	E4
7909	F2
7961	G3
7967	G4
7968	C1
7970	C1
7971	C1
7972	B1
7992	A1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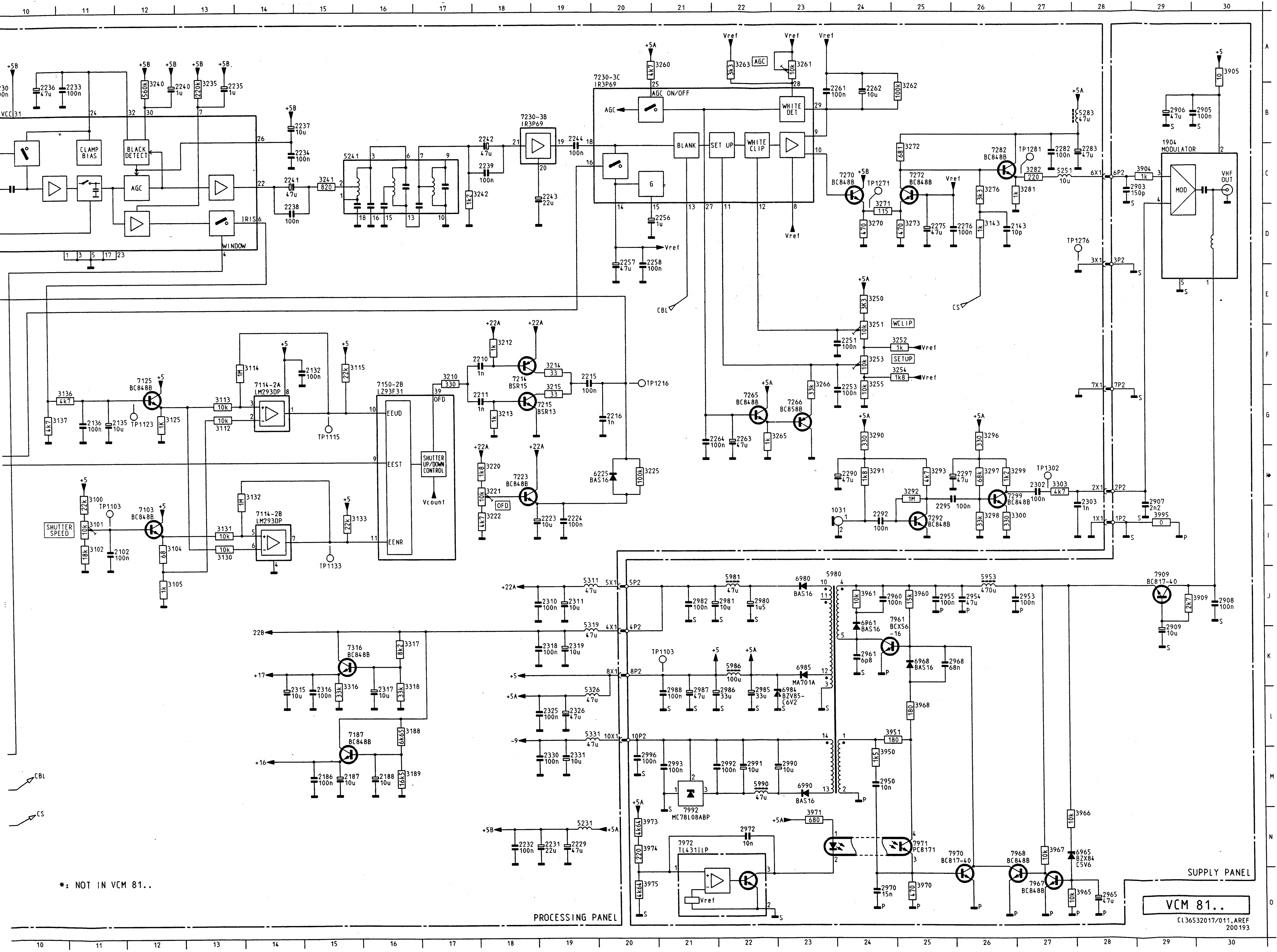
CCIR=LZ2324Z
IMAGE SENSOR
CCD
PV
RD
CGND
T2
AGND
T1
OD
OS
H2
H1
OFD
V1
V2
V3
V4
7196
BFS19
TP1232
7230-3A
IR3P69
CLAMP
CLAMP BIAS
BLACK DETECT
AGC
IRIS
WINDOW
VCC
7230-3B
IR3P69
7230-3C
IR3P69
AGC ON/OFF
AGC
WHITE DET
BLANK
SET UP
WHITE CLIP
G
Vref
CBL
7170
LR36683N
VCC
6170
BAS16
7150-2A
LZ93F31
VH1
V1X
V2X
VH3X
V3X
V4X
OB
WIND
FH1
FH2
FRX
FCDS
FS
MFS1
MFS2
MCO1
MCO2
MFR1
MFR2
MATRIX
÷2
H RESET
V COUNT
V RESET
OSC
7145
BSS83
LINE LOCK
9X1
6148
BBY39
TP1141
TO BE CONNECTED FOR CCIR VERSIONS
7141
LZ93B53
CLK1
HD1
HD2
VD1
GATE
1/3 OR 1/4
7 BIT COUNTER
GATE CONTROL
RESET
10 BIT COUNTER
F/F
CLKO
CKMO
VCC
VR1
TVMD
GND
TST1
CPMD
VD2
HBLK
CBLK
CSYN
BCP1
CBL
CS
7125
BC848B
TP1123
7114-2A
LM293DP
TP1115
7150-2B
LZ93F31
EEUD
EEST
EENR
OFD
SHUTTER UP/DOWN CONTROL
Vcount
SHUTTER SPEED
TP1103
7103
BC848B
7114-2B
LM293DP
TP1133
7214
BSR15
7215
BSR13
TP1216
7223
BC848B
OFD
6225
BAS16
7265
BC848B
7266
BC858B
7316
BC848B
7187
BC848B
+22A
+17
+16
+5
+5A
-9
+5B
5311
5319
5326
5331
5231
5X1
4X1
8X1
10X1
5P2
4P2
8P2
10P2
5981
5986
5990
5980
6980
BAS16
6985
MA701A
6984
BZV85-C6V2
6990
BAS16
7992
MC78L08ABP
3971
7972
TL431ILP
Vref
TP1103
*: NOT IN VCM 81..
PROCESSING PANEL

CIRCUIT DIAGRAM


7230-3C IR3P69
AGC ON/OFF
WHITE DET
BLANK
SET UP
WHITE CLIP
7230-3B IR3P69
CLAMP BIAS
BLACK DETECT
AGC
IRIS
WINDOW
7114-2A LM293DP
7114-2B LM293DP
7150-2B LZ93F31
EEUD
EEST
EENR
OFD
SHUTTER UP/DOWN CONTROL
Vcount
SHUTTER SPEED
1904 MODULATOR
MOD
VHF OUT
7992 MC78L08ABP
7972 TL431ILP
7971 PC8171
7961 BCX56-16
WCLIP
SETUP
CBL
CS
Vref
PROCESSING PANEL
SUPPLY PANEL
VCM 81..
CL 36532017/011.AREF
200193
*: NOT IN VCM 81..

1031	I24	3114	F14	6984	L23
1904	C29	3115	F15	6985	K23
2102	I11	3125	G12	6990	M23
2132	F15	3130	I13	7040	B 4
2135	G11	3131	I13	7103	I12
2136	G11	3132	H14	7114	G14
2140	N 3	3133	I15	7114	I14
2141	N 4	3136	G11	7125	F12
2143	D26	3137	G10	7141	K 7
2144	M 9	3142	N 4	7145	L 2
2147	M 3	3143	D26	7150	G16
2148	K 4	3144	M 8	7150	H 4
2150	H 2	3146	L 2	7170	F 4
2151	H 3	3147	L 3	7187	L15
2155	J 9	3148	L 3	7196	C 7
2158	K 3	3149	L 4	7214	F18
2160	K 3	3161	J 3	7215	G19
2162	K 2	3170	F 7	7223	H18
2163	K 3	3185	C 3	7230	B 9
2170	F 7	3188	L16	7230	B18
2171	F 7	3189	M16	7230	A20
2180	C 3	3195	B 7	7265	G22
2185	C 3	3196	B 7	7266	G23
2186	M15	3197	D 7	7270	C24
2187	M15	3200	D 7	7272	C25
2188	M16	3201	D 8	7282	C26
2196	C 8	3202	C 7	7292	I25
2197	C 7	3203	C 8	7299	H26
2206	D 8	3205	D 7	7316	K15
2210	F18	3206	E 7	7909	J29
2211	G18	3210	F17	7961	J24
2215	F19	3212	F18	7967	O27
2216	G20	3213	G18	7968	N27
2223	I19	3214	F19	7970	N25
2224	I19	3215	G19	7971	N25
2229	N19	3220	H18	7972	N21
2230	B 9	3221	H18	7992	M21
2231	N19	3222	I18		
2232	N18	3225	H20		
2233	B11	3235	A13		
2234	C15	3240	A12		
2235	B13	3241	C15		
2236	B10	3242	C18		
2237	B15	3250	E24		
2238	D14	3251	E24		
2239	C18	3252	F25		
2240	B13	3253	F24		
2241	C14	3254	F25		
2242	B18	3255	F24		
2243	C19	3260	A21		
2244	B19	3261	A23		
2251	F24	3262	A25		
2253	G24	3263	A22		
2256	D21	3265	G22		
2257	E20	3266	F23		
2258	E20	3270	D24		
2261	B23	3271	D24		
2262	B24	3272	B25		
2263	G22	3273	D25		
2264	G21	3276	C26		
2275	D25	3281	C27		
2276	D26	3282	C27		
2282	C27	3290	G24		
2283	C28	3291	H24		
2290	H24	3292	H25		
2292	I24	3293	H25		
2295	H25	3296	G26		
2297	H26	3297	H26		
2302	H27	3298	I26		
2303	H28	3299	H26		
2310	J19	3300	I26		
2311	J19	3303	H27		
2315	L14	3316	K15		
2316	L15	3317	K16		
2317	L16	3318	K16		
2318	K19	3904	C29		
2319	K19	3905	A30		
2325	L19	3909	J29		
2326	L19	3950	M24		
2330	M19	3951	L24		
2331	M19	3960	J25		
2903	C28	3961	J24		
2905	B30	3965	O27		
2906	B29	3966	N27		
2907	H29	3967	N27		
2908	J30	3968	L25		
2909	K29	3970	O25		
2950	M24	3971	N23		
2953	J27	3973	N20		
2954	J26	3974	N20		
2955	J25	3975	O20		
2960	J24	3995	I29		
2961	K24	5141	M 4		
2965	O28	5150	H 3		
2968	K25	5161	K 3		
2970	O24	5230	A 9		
2972	N22	5231	N19		
2980	J22	5241	C15		
2981	J22	5251	C27		
2982	J21	5283	B28		
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2986	L22	5319	K19		
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2988	L21	5331	L19		
2990	M23	5953	J26		
2991	M22	5980	J24		
2992	M22	5981	J22		
2993	M21	5986	K22		
2996	M20	5990	M22		
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3101	I11	6170	F 7		
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3104	I12	6961	J24		
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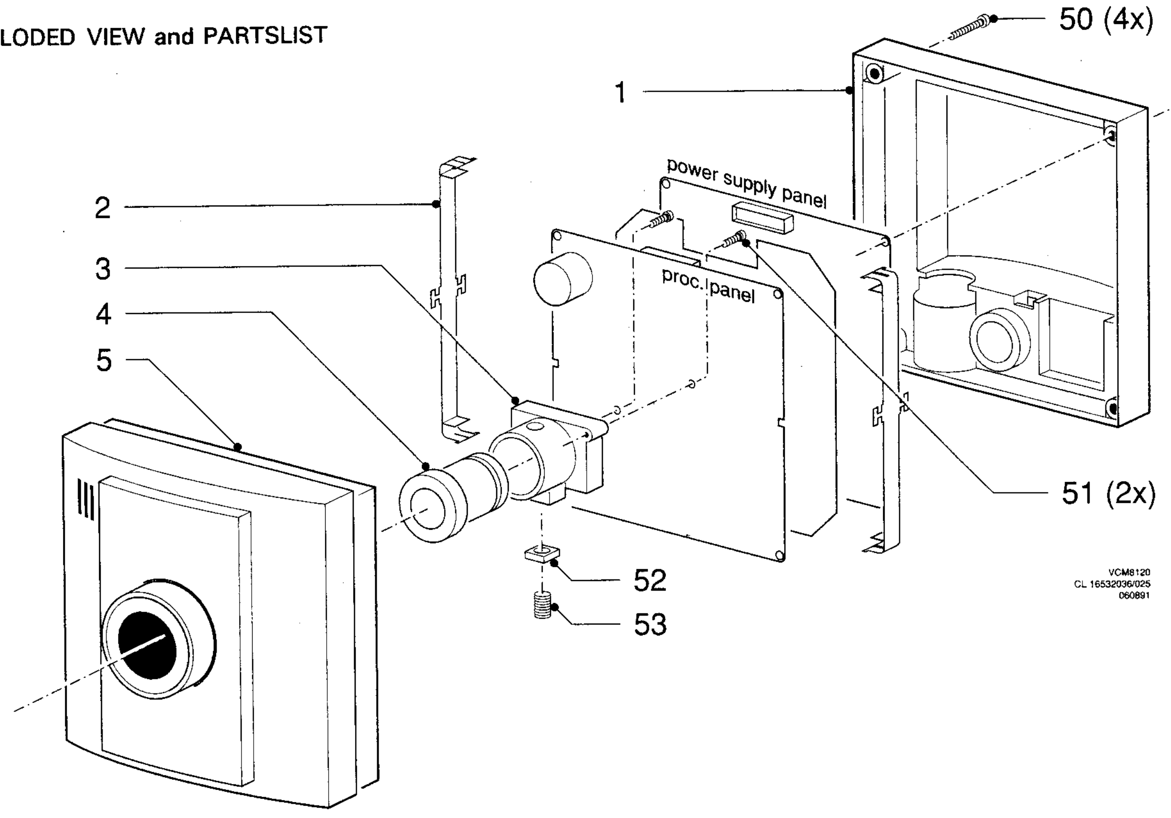
3113	G13	6980	J23		

EXPLODED VIEW and PARTSLIST



	4822 462 10507	Tripod assy /00/01T
	4822 462 10516	Tripod assy /05R
	4822 502 21314	Screw for tripod
	4822 505 10665	Lock nut M5
	4822 321 61405	Coax conn. cable
	4822 264 10233	Male coax plug
	4822 267 31424	Fem. coax socket
	4822 736 52646	DFU /00T/01T
	4822 736 52817	DFU /05R
	4822 310 32045	Extension board
	4822 395 50426	Trimming tool SMD
1	4822 432 60621	Housing back /00T/01T
1	4822 432 60678	Housing back /05R
2	4822 466 93052	Spacer
3	4822 256 80074	Lens Holder
4	4822 381 11291	Lens 3.6 mm
5	4822 432 60619	Housing front /00T/01T
5	4822 432 60681	Housing front /05R
50	4822 502 13887	Torx screw 2x20
51	4822 502 13886	Torx screw 2x5
52	4822 505 10635	Square nut
53	4822 502 10176	Screw M3x5

Various

1020	4822 212 30438	Proc. PCB assy 00/01T
1020	4822 212 30439	Proc. PCB assy 05R
1021	4822 214 33474	Power board /00T
1021	4822 214 33536	Power board /01T
1021	4822 214 33475	Power board /05R
1031	4822 242 30176	Microphone
1035	4822 212 10232	Proc. panel
1103	4822 404 60717	Test clip chip
1115	4822 404 60717	Test clip chip
1123	4822 404 60717	Test clip chip
1133	4822 404 60717	Test clip chip
1141	4822 404 60717	Test clip chip
1216	4822 404 60717	Test clip chip
1232	4822 404 60717	Test clip chip
1271	4822 404 60717	Test clip chip
1276	4822 404 60717	Test clip chip
1281	4822 404 60717	Test clip chip
1302	4822 404 60717	Test clip chip
X1	5322 265 40903	Connector 10p
P2	4822 265 41281	Connector 10p

Modulator

1904	4822 214 33469	Modulator /00T
1904	4822 214 33535	Modulator /01T
1904	4822 214 33468	Modulator /05R

Capacitors

2102	4822 126 10002	100nF 20% 25V
2132	4822 126 10002	100nF 20% 25V
2135	4822 124 23982	10μF 20% 25V
2136	4822 126 10002	100nF 20% 25V
2140	4822 126 10002	100nF +80/-20%
2141	4822 124 23981	47μF 20% 6.3V
2143	5322 122 32448	10pF 5% 50V
2144	5322 122 32531	100pF 5% 50V
2150	4822 126 10002	100nF 20% 25V
2151	4822 124 23981	47μF 20% 6.3V
2155	5322 122 34123	1nF 10% 50V
2158	5322 122 32659	33pF 5% 50V
2160	5322 122 32448	10pF 5% 50V
2162	4822 122 33981	22pF 5%
2163	5322 122 32448	10pF 5% 50V
2170	4822 124 23981	47μF 20% 6.3V
2171	4822 126 10002	100nF 20% 25V
2180	4822 126 10002	100nF 20% 25V
2185	4822 126 10002	100nF 20% 25V
2186	4822 126 10002	100nF 20% 25V
2187	4822 124 23982	10μF 20% 25V
2188	4822 124 23982	10μF 20% 25V
2196	4822 126 10002	100nF 20% 25V
2197	4822 124 23982	10μF 20% 25V
2206	5322 122 34123	1nF 10% 50V
2210	5322 122 34123	1nF 10% 50V
2211	5322 122 34123	1nF 10% 50V
2215	4822 126 10002	100nF 20% 25V
2216	5322 122 34123	1nF 10% 50V
2223	4822 124 23982	10μF 20% 25V
2224	4822 126 10002	100nF 20% 25V
2229	4822 124 23981	47μF 20% 6.3V
2230	4822 126 10002	100nF 20% 25V
2231	4822 126 11216	22μF 20% 6.3V
2232	4822 126 10002	100nF 20% 25V
2233	4822 126 10002	100nF 20% 25V
2234	4822 126 10002	100nF 20% 25V
2235	4822 126 11219	1μF 20% 16V
2236	4822 124 23981	47μF 20% 6.3V
2237	4822 124 23982	10μF 20% 25V
2238	4822 126 10002	100nF 20% 25V
2239	4822 126 10002	100nF 20% 25V
2240	4822 126 11219	1μF 20% 16V
2241	4822 124 23981	47μF 20% 6.3V
2242	4822 124 23981	47μF 20% 6.3V
2243	4822 126 11216	22μF 20% 6.3V
2244	4822 122 33496	100nF 10% 63V
2251	4822 126 10002	100nF 20% 25V
2253	4822 126 10002	100nF 20% 25V
2256	4822 126 11219	1μF 20% 16V
2257	4822 124 23981	47μF 20% 6.3V
2258	4822 126 10002	100nF 20% 25V
2261	4822 126 10002	100nF 20% 25V
2262	4822 124 23982	10μF 20% 25V
2263	4822 124 23981	47μF 20% 6.3V
2264	4822 126 10002	100nF 20% 25V
2275	4822 124 23981	47μF 20% 6.3V
2276	4822 126 10002	100nF 20% 25V
2282	4822 126 10002	100nF 20% 25V
2283	4822 124 23981	47μF 20% 6.3V
2290	4822 124 23981	47μF 20% 6.3V
2292	4822 126 10002	100nF 20% 25V
2295	4822 126 10002	100nF 20% 25V
2297	4822 124 23981	47μF 20% 6.3V
2302	4822 126 10002	100nF 20% 25V
2303	5322 122 34123	1nF 10% 50V
2310	4822 126 10002	100nF 20% 25V
2311	4822 124 23982	10μF 20% 25V
2315	4822 124 23982	10μF 20% 25V
2316	4822 126 10002	100nF 20% 25V
2317	4822 124 23982	10μF 20% 25V
2318	4822 126 10002	100nF 20% 25V
2319	4822 124 23982	10μF 20% 25V
2325	4822 126 10002	100nF 20% 25V
2326	4822 124 23981	47μF 20% 6.3V
2330	4822 126 10002	100nF 20% 25V
2331	4822 124 23982	10μF 20% 25V
2903	5322 122 33538	150pF 5% NPO
2905	4822 126 10002	100nF +80/-20%
2906	4822 124 23981	47μF 20% 6.3V
2907	4822 122 33127	2n2 10% x7R
2908	4822 126 10002	100nF +80/-20%
2909	4822 124 23982	10μF 20% 25V
2950	5322 122 34098	10nF 10% X7R
2953	4822 126 10002	100nF +80/-20%
2954	4822 124 40433	470μF 25V
2955	4822 126 10002	100nF +80/-20%
2960	4822 126 10002	100nF +80/-20%
2961	4822 122 32507	6.8pF 5% 50V
2965	4822 124 23981	47μF 20% 6.3V
2968	4822 122 32891	68nF 10%
2970	4822 122 33128	15nF 10% X7R
2972	5322 122 34098	10nF 10% X7R
2980	4822 124 23979	1.5μF 20% 25V
2981	4822 124 23982	10μF 20% 25V
2982	4822 126 10002	100nF +80/-20%
2985	4822 124 23795	33μF 10% 6.3V
2986	4822 124 23795	33μF 10% 6.3V
2987	4822 124 23981	47μF 20% 6.3V
2988	4822 126 10002	100nF +80/-20%
2990	4822 124 23982	10μF 25V
2991	4822 124 23982	10μF 25V
2992	4822 126 10002	100nF +80/-20%
2993	4822 126 10002	100nF +80/-20%
2996	4822 122 33496	100nF 63V

Resistor

3100	4822 051 20223	22k 5% 0,1W
3101	4822 100 11663	10k
3102	4822 051 20183	18k 5% 0,1W
3104	4822 051 20689	68Ω 5% 0,1W
3105	4822 051 20102	1k 5% 0,1W
3112	4822 051 20103	10k 5% 0,1W
3113	4822 051 20103	10k 5% 0,1W
3114	4822 051 20105	1M 5% 0,1W
3115	4822 051 20223	22k 5% 0,1W
3124	4822 111 91536	
3125	4822 051 20102	1k 5% 0,1W
3130	4822 051 20103	10k 5% 0,1W
3131	4822 051 20103	10k 5% 0,1W
3132	4822 051 20105	1M 5% 0,1W
3133	4822 051 20223	22k 5% 0,1W
3136	4822 051 20472	4k7 5% 0,1W
3137	4822 051 20472	4k7 5% 0,1W
3143	4822 051 20102	1k 5% 0,1W
3144	4822 051 20102	1k 5% 0,1W
3155	4822 111 91536	
3161	4822 051 20331	330Ω 5% 0,1W
3170	4822 051 20471	470Ω 5% 0,1W
3185	4822 051 20332	3k3 5% 0,1W
3188	4822 116 83479	6k 65 1%
3189	4822 116 83481	16k 5
3195	4822 051 20339	33Ω 5% 0,1W
3196	4822 051 20339	33Ω 5% 0,1W
3197	4822 051 20472	4k7 5% 0,1W
3200	4822 051 20339	33Ω 5% 0,1W
3201	4822 051 20472	4k7 5% 0,1W
3202	4822 051 20223	22k 5% 0,1W
3203	4822 051 20103	10k 5% 0,1W
3205	4822 051 20339	33Ω 5% 0,1W
3206	4822 051 20339	33Ω 5% 0,1W
3210	4822 051 20331	330Ω 5% 0,1W
3212	4822 051 20102	1k 5% 0,1W
3213	4822 051 20102	1k 5% 0,1W
3214	4822 051 20339	33Ω 5% 0,1W
3215	4822 051 20339	33Ω 5% 0,1W
3220	4822 051 20182	1k8 5% 0,1W
3221	4822 100 11663	10k potm.
3222	4822 051 20472	4k7 5% 0,1W
3225	4822 051 20104	100k 5% 0,1W
3235	4822 051 20224	220k 5% 0,1W
3240	4822 051 20564	560k 5% 0,1W
3241	4822 051 20821	820Ω 5% 0,1W
3242	4822 051 20122	1k2 5% 0,1W
3250	4822 051 20332	3k3 5% 0,1W
3251	4822 100 11663	10k potm.
3252	4822 051 20102	1k 5% 0,1W
3253	4822 100 11663	10k potm.
3254	4822 051 20182	1k8 5% 0,1W
3255	4822 051 20103	10k 5% 0,1W
3260	4822 051 20472	4k7 5% 0,1W
3261	4822 100 11663	10k potm.
3262	4822 051 20104	100k 5% 0,1W
3263	4822 051 20332	3k3 5% 0,1W
3265	4822 051 20102	1k 5% 0,1W
3266	4822 051 20333	33k 5% 0,1W
3270	4822 051 20471	470Ω 5% 0,1W
3271	4822 116 83482	115Ω 1%
3272	4822 116 83483	681Ω 1%
3273	4822 051 20471	470Ω 5% 0,1W
3276	4822 051 20332	3k3 5% 0,1W
3281	4822 051 20102	1k 5% 0,1W
3282	4822 051 20221	220Ω 5% 0,1W
3290	4822 051 20331	330Ω 5% 0,1W
3291	4822 051 20182	1k8 5% 0,1W
3292	4822 051 20105	1M 5% 0,1W
3293	4822 051 20472	4k7 5% 0,1W
3296	4822 051 20331	330Ω 5% 0,1W
3297	4822 051 20683	68k 5% 0,1W
3298	4822 051 20333	33k 5% 0,1W
3299	4822 051 20122	1k2 5% 0,1W
3300	4822 051 20331	330Ω 5% 0,1W
3303	4822 051 20472	4k7 5% 0,1W
3316	4822 051 20333	33k 5% 0,1W
3317	4822 051 20822	8k2 5% 0,1W
3318	4822 051 20333	33k 5% 0,1W
3904	4822 051 10102	1k 2% 0,25W
3905	4822 051 20109	10Ω 5%
3909	4822 051 20272	2k7 5%
3950	4822 051 20152	1k5 5%
3951	4822 051 20181	180 5%
3960	4822 051 20153	15k 5%
3961	4822 051 20103	10k 5%
3965	4822 051 20103	10k 5%
3966	4822 051 20103	10k 5%
3967	4822 051 20103	10k 5%
3968	4822 051 20181	180Ω 5%
3970	4822 051 20471	470Ω 5%
3971	4822 051 20681	680Ω 5%
3973	4822 051 54642	4k64 1%
3974	4822 051 20221	220Ω 5%
3975	4822 051 54642	4k64 1%
3995	4822 051 20008	0R

Coils

5141	5322 157 63043	47μH 10%
5150	5322 157 63043	47μH 10%
5161	4822 156 21648	2.2μH 19.3mH z
5230	4822 526 10548	Bead
5231	4822 526 10548	Bead
5241	4822 157 63636	4FT 9.6MHz
5251	4822 157 63635	Coil
5283	5322 157 63043	47μH 10%
5311	5322 157 63043	47μH 10%
5319	5322 157 63043	47μH 10%
5326	4822 526 10548	Bead
5331	5322 157 63043	47μH 10%
5953	4822 157 63347	470μH
5980	4822 148 81212	Transformer
5981	5322 157 63043	47μH 10%
5986	4822 157 51904	100μH
5990	5322 157 63043	47μH 10%

Diode

6170	5322 130 31928	BAS16
6225	5322 130 31928	BAS16
6961	5322 130 31928	BAS16
6965	4822 130 80125	BZX84-C5V6
6968	5322 130 31928	BAS16
6980	5322 130 31928	BAS16
6984	5322 130 32962	BZV85-C6V2
6985	4822 130 81125	MA701A
6990	5322 130 31928	BAS16

Transistor & I.C.'s

7040	4822 209 31329	LZ2314Z /05R
7040	4822 209 31331	LZ2324Z /00T/01T
7103	5322 130 41982	BC848B
7114	4822 209 31205	LM293D
7125	5322 130 41982	BC848B
7141	4822 209 30637	LZ93B53
7150	4822 209 30636	LZ93F31
7170	4822 209 30635	LR36683N
7187	5322 130 41982	BC848B
7196	4822 130 42353	BFS19
7214	5322 130 60503	BSR15
7215	4822 130 62908	BSR13
7223	5322 130 41982	BC848B
7230	4822 209 30638	IR3P69
7265	5322 130 41982	BC848B
7266	5322 130 41983	BC858B
7270	5322 130 41982	BC848B
7272	5322 130 41982	BC848B
7282	5322 130 41982	BC848B
7292	5322 130 41982	BC848B
7299	5322 130 41982	BC848B
7316	5322 130 41982	BC848B
7909	4822 130 42615	BC817-40
7961	5322 130 61817	BCX56-16
7967	5322 130 41982	BC848B
7968	5322 130 41982	BC848B
7970	4822 130 42615	BC817-40
7971	4822 130 82847	PC817I
7972	5322 209 62029	TL431ILP
7992	4822 209 30639	MC78L08ABP